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TRANSACTIONS

OF THE

MEDICAL SOCIETY

OF THE

STATE OF CALIFORNIA,

DURING THE YEARS 1877 AND 1878.

SACRAMENTO:
H. S. CROCKER & CO., PRINTERS AND STATIONERS.
1878.

TRANSACTIONS

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STATE OF CALIFORNIA,

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RHODE ISLAND
MEDICAL SOCIETY.

SACRAMENTO:
H. S. CROCKER & CO., PRINTERS AND STATIONERS.
1878.

REPORT OF COMMITTEE ON PUBLICATION.

The Committee on Publication, in presenting the Eighth Volume of the Transactions of the Medical Society of the State of California to its members, have to express their regret at the unavoidable delay in its publication, consequent upon the difficulty experienced in obtaining reports in season from the Chairmen of the different Committees. From this cause, some reports of Committees which usually add much interest to the volume, are necessarily omitted. The Committee have, to the best of their ability, utilized the material on hand, without invidious distinction; and, although believing that some of the papers presented might find a more fitting place in the columns of a local medical journal, considered it their duty to those who had added their mite to the treasury of medical knowledge, to give them due acknowledgment in the pages presented.

In accordance with a resolution passed at the last session of the society, the amendments to the Constitution, and the different resolutions adopted from year to year for its government, have been formulated and incorporated in the present volume.

In typography and other respects we believe that this volume will compare favorably with those that have preceded it; and without further apology or remark, ask its acceptance by the members of the society.

GERRARD G. TYRRELL, Chairman,
F. W. HATCH,
T. A. SNIDER,
H. W. NELSON,
W. R. CLUNESS,
Committee on Publication.

Sacramento, July, 1878.

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EIGHTH ANNUAL MEETING

OF THE

MEDICAL SOCIETY

OF THE

STATE OF CALIFORNIA.

THE Eighth Annual Session of the California State Medical Society was convened at Music Hall, San Jose, April 17th, 1878, at 11:45 A. M., President Washington Ayer in the chair.

The society having been called to order, Dr. A. W. Saxe, Chairman of the Committee of Arrangements, read an address of welcome to the members and delegates, as follows:

MR. PRESIDENT, LADIES AND GENTLEMEN OF THE CALIFORNIA STATE MEDICAL SOCIETY: The Committee of Arrangements for the Eighth Annual Meeting of your society take pleasure in bidding you a cordial welcome to the City of San Jose, and invite your attention to the various important matters of business which will come before you, and which will claim your most earnest and well considered action.

The hall chosen by your committee for the uses of the convention is every way convenient, and sufficiently spacious for all your needs. The invitations issued by your

committee to all the members of the State Medical Society, have elicited numerous responses, and give promise of an exceedingly interesting session, which we hope may be full of profit to the profession and to the community.

One of the most important uses of the convention is the opportunity afforded for the formation of mutual aquaintance, and renewing of old ones among the members of the society; and it is earnestly hoped that harmony, good will, and fraternity may characterize its deliberations.

To those members of the society who occupy positions of distinction well earned by arduous labors in early life, who shed glory upon the profession, we bid you welcome.

To those who, by careful research in the dissecting room, and by the bedside, by microscopic and spectroscopic examinations and chemical analyses have added much to our knowledge of the minute structures and functions of the human body, and given to pathology those wonderfully accurate means of diagnosis, we bid you a double welcome.

To the rank and file of the profession who are bearing the burden and heat of the day, toiling, at the call of distress, through bogs and ferns, over mountain trails, on snowshoes and on horseback, regardless of the lurking malaria, torrid heat or arctic cold, and inadequate pecuniary recompense, only caring that human life is in jeopardy, and that human suffering is to be alleviated—you are thrice welcome; and being all members of one body, each should enjoy his due proportion of the most excellent glory of the medical profession—one of the most palpable manifestations of divine beneficence, through human agency, that has survived the fall.

Your committee earnestly hope that the present session may be characterized by great profit, cordial fraternity, and enjoyment.

On motion, the address was referred to the Committee on Publication.

The committee reported the following members present:

G. H. Powers, San Francisco; R. Beverly Cole, San Francisco; G. G. Tyrrell, Sacramento; W. Ayer, San Francisco; W. T. Wythe, San Francisco; Benj. Cory, San Jose; W. S. Thorne, San Jose; A. W. Saxe, Santa Clara; P. M. Lusson, San Jose; J. B. Cox, San Jose; C. K. Farley, Gilroy; Q. C. Smith, Cloverdale; S. Holmes, Santa Cruz; A. Fine, Watsonville; F. W. Hatch, Jr., Sacramento; M. M. Chipman, San Francisco; H. Gibbons, San Francisco; Mrs. C. B. Brown, San Francisco; C. A. Kirkpatrick, Redwood City; Benj. D. Dean, San Francisco; W. A. Grover, San Francisco; S. J. S. Rogers, Marysville; H. J. Crumpton, Lakeport; J. M. Briceland, Shasta; J. F. Montgomery, Sacramento; N. Williams, Richland; Thos. Ross, Yolo; G. W. Davis, Chico; H. S. Orme, Los Angeles; H. Neal, Hollister; Mrs. E. P. Stone, Oakland; Mrs. E. A. Follansbee, San Francisco; Mrs. E. A. V. Brownell, San Francisco.

Delegates from Santa Clara Medical Society—Drs. R. Caldwell, T. J. Jenkins, J. W. Brown, M. S. McMahon, H. D. Robertson.

Visitors—J. H. Carothers, Martinez; A. H. Cochrane, John McMahon, N. J. Cory, Thos. Kelly, P. N. Snyder, C. N. Worthington, J. D. Scott, Jared Turner, J. T. Malone, J. S. Potts, Rev. Dr. Bucknell, San Jose; H. N. Rucker, Merced; A. Kesseler, Volcano.

The Board of Censors reported the following named gentlemen eligible for membership:

NAME.	SCHOOL.	DATE.
A. Kesseler, Volcano	University of New York	1876
John B. McMahon	Medical College, Ohio	1878
A. P. Whittell	University of California	1873
M. S. McMahon	University of Iowa	1858
Thos. Kelly	Rush Medical College	1871
Robt. Caldwell	Toland Medical College	1869
H. D. Robertson	Medical College of Pacific	1876
T. J. Jenkins	University of Tennessee	1877
A. H. Cochrane	Albany Medical College	1857

The report was received, and on motion adopted, and the Secretary ordered to cast the vote of the society for those named.

The President then delivered the annual address.

The Secretary read a communication from Dr. Cox, inviting members to visit City and County Hospital.

On motion of Dr. R. Beverly Cole, the invitation was accepted with the thanks of the society.

The resignation of Dr. W. H. Mays was read and accepted.

A communication from Dr. E. J. Martin was also read and referred to the Board of Censors.

An invitation to the members to visit the San Jose Library was received, and thanks of the society returned to the Librarian.

A communication from the Secretary of the Alameda Medical Society was received, and referred to the Committee on Necrology.

The Secretary read a petition from Dr. J. Hastings.

Dr. Powers moved that the petition be referred to the Board of Censors, with authority to publish for one week the petition and the reasons therein asked for.

Dr. Gibbons moved an amendment, that the whole matter be referred to the Board of Censors.

The amendment was carried, and the subject matter so referred.

The Secretary also presented the petitions of Drs. Mintie and Czapkay, which were also referred to the Board of Censors.

The minutes of the session having been read and approved, on motion, the society adjourned until 2 P. M.

AFTERNOON SESSION, APRIL 17TH, 1878.

The society was called to order by the President, at 2 P. M.

The President announced that he had appointed Drs. Saxe and Cox members of the Board of Censors, to fill the vacancies occasioned by the deaths of Drs. Chamberlain and Van Wyck.

On motion, the society confirmed the appointments made by the President.

The Board of Censors reported the following named, who were elected members of the society:

NAME.	SCHOOL.	DATE.
Chloe Annette Buckel	Women's Med. Col. of Pennsylvania	1858
B. F. Clarke	University of Pacific	1877

Dr. Wells read a paper on the Treatment and Causes of Diphtheria, which was referred to the Committee on Publication.

Dr. Powers presented the report of the Committee on Ophthalmology. Also referred to the Committee on Publication.

The Secretary read an invitation to the society to visit the State Normal School, which was accepted, and the thanks of the society returned therefor.

Dr. Gibbons offered the following resolution:

Resolved, That the Publication Committee be requested to insert in the proceedings, in a collective form, all the changes in the Constitution, and the resolutions relating to the government of the society, which have been adopted from time to time.

It was so ordered.

Dr. H. Gibbons presented the report of Dr. W. P. Gibbons on Indigenous Botany.

On motion of Dr. Cole, the paper was ordered returned to Dr. Gibbons, with the request that he complete it and return it to the Committee on Publication.

Dr. H. S. Orme read the report of the Committee on Medical Education.

Referred to the Committee on Publication.

On motion of Dr. Thorne, the President was authorized to appoint a committee of three, to whom shall be referred the matter of improved legislation touching the compensation of medical experts in California Courts.

Dr. Montgomery moved the adoption of proposed amendment to Section 1, Article III, of the Constitution.

Dr. Gibbons moved the amendment be laid on the table. Carried.

Dr. Dean moved the adoption of the proposed amendment to Article II, Section 4.

Adopted.

The proposed amendment to Article II, Section 6, was also adopted by the society.

The question being on the Robertson amendment, proposed at the last session, to the Constitution, as follows:

Any person having a certificate from the Board of Examiners of this society shall be eligible to membership of this society.

Dr. Powers moved to lay the subject on the table.

The motion was lost.

Dr. Gibbons moved to amend the amendment, as follows:

"Candidates for membership who present certificates from the Board of Examiners, founded on diplomas issued by regular medical schools, may be admitted by the Censors, should no objection to their admission be presented to the Censors."

The President ruled that the amendment, if offered, must lie over until next session.

On motion, the subject was made the special order for 8 o'clock P. M.

Dr. Oatman presented his report as Treasurer, which was referred to the following committee: Drs. Kirkpatrick, Montgomery, and Ross.

The President appointed Drs. Thorne, Cole, and Simmons, Committee on Legislation.

The minutes having been read and approved, on motion the society adjourned until 8 o'clock P. M.

EVENING SESSION, APRIL 17TH, 1878.

The society was called to order by the President.

The special order being on the amendment proposed to the Constitution at the last session, by Dr. E. B. Robertson, the Board of Censors, in connection therewith, reported that

they had examined the paper presented by Dr. Kirkpatrick, and addressed to the State Board of Examiners, and that the Board of Censors have no jurisdiction in the matter, but do not consider it a proper paper to be presented to the society in open meeting.

On motion, the report was received and adopted.

After some discussion on the subject matter of the amendment, Dr. Gibbons moved the indefinite postponement of the subject.

Carried.

A communication was received from Dr. Swan, presenting the report of the Committee on Necrology.

The report was read and referred to the Committee on Publication.

The committee to whom was referred the report of the Treasurer, reported the accounts correct.

On motion, the report was adopted.

The financial report of the Board of Examiners was read and referred to a committee, consisting of Drs. Kirkpatrick, Todd, and Smith.

The Secretary read the annual report of the State Board of Examiners.

On motion, the report was received.

Dr. Stout moved that the thanks of the society be tendered the Board of Examiners.

Carried.

Dr. Montgomery gave a verbal report relating to the action of the Legislative Committee.

On motion, the committee was discharged, with the thanks of the society.

Dr. Stout moved the appointment of a committee to whom shall be referred the law in relation to the practice of medicine, and who shall report at the next session such changes and amendments as may be deemed necessary.

It was so ordered.

The President appointed Drs. Stout, Oatman, and Montgomery as such committee.

Dr. Stout presented the report of the committee to whom

was referred the project of founding a hall for the society, which was read.

The report was accepted, and ordered published in the transactions.

Dr. F. W. Hatch, Chairman, read the report of the Committee on Public Hygiene and State Medicine, which was referred to the Publication Committee.

The committee to nominate officers for the ensuing year was announced, as follows:

H. Gibbons, San Francisco County; E. H. Woolsey, Alameda County; J. T. Wells, Kern County; A. B. Mehring, Tulare County; G. W. Davis, Butte County; G. L. Simmons, Sacramento County; H. S. Orme, Los Angeles County; M. S. McMahon, Santa Clara County; C. A. Kirkpatrick, San Mateo County; J. M. Briceland, Shasta County; H. J. Crumpton, Lake County; Thos. Ross, Yolo County; H. Neal, San Benito County; A. Kesseler, Amador County; S. J. S. Rogers, Yuba County; S. Holmes, Santa Cruz County; Q. C. Smith, Sonoma County; J. K. Reid, San Joaquin County.

On motion of Dr. A. B. Stout, it was—

Resolved, That the President appoint a committee of three to prepare a suitable expression of the sympathy of this society for ex-Surgeon General W. A. Hammond, and present to the Honorable Senate of the United States the respectful petition of this society, soliciting that the said ex-Surgeon General Hammond may be restored to his former prestige and honor in the estimation of the President of the United States.

The minutes of the session having been read and approved, the society adjourned.

MORNING SESSION, APRIL 18TH, 1878.

The society was called to order at 11 o'clock A. M., President Ayer in the chair.

The Board of Censors reported favorably on Dr. H. H.

Briggs, Chicago Medical College, 1874, who was elected to membership.

The Board of Censors reported in relation to the cases of Messrs. Hastings, Mintie, and Czapkay, "that we have no jurisdiction in these several cases without further action of the Board of Examiners, and recommend that these several cases be referred to the new Board of Censors for further action, and report at the next meeting of the society."

The report was adopted.

The Board of Censors reported in relation to the case of Dr. M. Baker of Visalia, "that no charges in a tangible form have been made, nor any evidence substantiating the reflections cast upon him, presented to the Board. They therefore recommend that all further consideration of the case be indefinitely postponed."

The report was adopted.

Dr. O. Harvey presented the following resolution:

Resolved, That the recommendation of the last Board of Censors in the case of Dr. H. H. Warburton be now adopted, action having failed to be taken at the last meeting.

Adopted.

Dr. Thorne presented a resolution in relation to arrears of dues.

The President decided the resolution unconstitutional.

On motion of Dr. Cole, the Secretary was directed to report the names of delinquent members annually to the Board of Censors.

Dr. J. Scott moved that the society confirm the action of the Board of Examiners in relation to the cases of Messrs. Hastings, Mintie, and Czapkay, which was carried.

The committee to which was referred the accounts of the Board of Examiners, reported that they had been found correct.

The report was adopted and committee discharged.

Dr. Cox presented a paper by Dr. Worthington, on

"Pigment Induration of Lungs, Associated with Heart Disease."

Referred to Committee on Publication.

Dr. L. C. Lane, Chairman, read the report of the Committee on Surgery.

Referred to Committee on Publication, and thanks of the society returned to Dr. Lane.

The Secretary read the following report of the Nominating Committee:

TO THE MEDICAL SOCIETY OF THE STATE OF CALIFORNIA: Your committee, to whom was intrusted the nomination of the officers of the society for the ensuing year, report as follows:

President—H. S. Orme, of Los Angeles.

Vice Presidents—A. W. Saxe, of Santa Clara; J. M. Briceland, of Shasta; James Simpson, of San Francisco; G. L. Simmons, of Sacramento.

Assistant Secretaries—F. W. Hatch, Jr., of Sacramento; Thomas Ross, of Yolo.

Treasurer—I. E. Oatman, of Sacramento.

Board of Censors—H. Gibbons, Sr., of San Francisco; Q. C. Smith, of Sonoma; B. D. Dean, of San Francisco; R. A. McLean, of San Francisco; W. A. Grover, of San Francisco; C. A. Kirkpatrick, of Redwood City.

State Board of Examiners—R. Beverly Cole, H. Gibbons, Jr., C. M. Bates, of San Francisco; H. P. Babcock, of Oakland; J. B. Cox, of San Jose; Luke Robinson, of Colusa; J. F. Montgomery, of Sacramento.

Alternates—G. A. Shurtleff, of Stockton; G. W. Davis, of Chico; S. Holmes, of Santa Cruz.

The next place of meeting, San Francisco.

All of which is respectfully submitted.

THOMAS ROSS, Secretary.

On motion, the report was adopted.

Dr. B. D. Dean declined the nomination as member of the Board of Censors.

The society then directed the Secretary to cast the vote of the society for the remaining names reported by the committee, who thereupon were declared by the President duly elected.

On motion of Dr. Blake, the Committee on Nominations were directed to present the name of some member to the society to fill the vacancy caused by the declination of Dr. Dean.

The Committee on Prize Essays reported that no essays had been received.

Dr. Wilder presented an interesting case of disease of the ear, resulting from injury, and showing results of operation.

Dr. Woolsey presented several pathological specimens, and papers relating thereto.

Papers were referred to Committee on Publication.

Drs. Slocum of Ohio, Johnson of Chicago, and McGrigin of Philadelphia, were invited to seats in the convention.

The Committee on Nominations presented the name of Dr. R. A. McLean, to fill vacancy in Board of Censors, who was, on motion, duly elected.

The Board of Censors reporting favorably, Dr. J. H. Carothers, Miami College, 1866, was elected to membership.

The report of the Committee on Mental Diseases was read by title and referred to Committtee on Publication.

The Committee on Publication presented the Proceedings of the Session of 1877 as their report, which was received and adopted.

Dr. Brigham presented a patient exhibiting the result of excision of scapula and head of humerus.

Dr. J. T. Burdick, University of Michigan, 1872, was elected to membership.

Society adjourned until 2 o'clock P. M.

AFTERNOON SESSION, APRIL 18TH.

Society called to order by the President at 2 P. M.

The President presented a Supplemental Report on Sur-

gery, from Dr. James Murphy, which was referred to Committee on Publication.

Bills for printing and rent of hall were referred to Finance Committee.

Board of Censors reported favorably for membership the names of:

NAME.	SCHOOL.	DATE.
Eliz. Grisselle, San Francisco	Western Reserve College	1855
Hiram Rucker, Merced	University of California	1870
W. A. Washington, Merced	University of Virginia	1858
A. S. Hudson, Stockton	Albany Medical College	1846

—Who were unanimously elected.

Dr. G. W. Davis presented a paper on "Mental Influences," which was referred to Committee on Publication.

Dr. Davis then proceeded to read a paper, by Dr. J. A. Dawson, of Chico, reporting cases of mushroom poisoning, which was referred to Committee on Publication.

Dr. S. E. Brown read a paper on Removal of Calculi from the Ear.

Referred to Committee on Publication.

Board of Censors reported that they recommend that the name of Dr. E. J. Martin be dropped from the roll.

It was so directed.

Mrs. Dr. Buckel presented a paper on Development of Embryology.

Referred to Committee on Publication.

Drs. Thorne and Caldwell presented a paper on Paracentesis Thoracis.

Referred to Committee on Publication.

Dr. Cox presented Supplemental Report on Medical Education.

Referred to Committee on Publication.

No report presented from Committee on Diseases of Women and Children.

Dr. Q. C. Smith read a paper entitled "Doctors and Law Makers," which was referred to Committee on Publication.

Dr. Orme moved that the Secretary of the Board of Examiners be instructed to communicate with the local

medical societies, and urge that they prosecute violations of the medical law, and that they report progress from time to time to the Board of Examiners.

Carried.

Dr. Orme moved that the Permanent Secretary be authorized to have printed and distribute one thousand copies of the present Medical Law.

Adopted.

Dr. Woolsey moved that the Committee on Publication of Certificates procure the same without delay.

Adopted.

Dr. Cole read a report on Gynæcology, exhibited several instruments in connection therewith, and explained their use. He also presented the following supplementary reports: Case by Dr. Kirkpatrick, of Redwood; case by Dr. I. Revas, San Francisco; Endometritis, Dr. S. Holmes, of Santa Cruz; case by Dr. Chismore, of San Francisco.

Dr. Gibbons, Sr., offered the following amendment to the Constitution:

Resolved, That Section I, Article III of the Constitution be altered to read as follows: The officers of this society shall be a President, four Vice Presidents, one Secretary, two Assistant Secretaries, a Treasurer, and a Board of Censors of five members. These officers shall be nominated by a committee of one member from each county, on the morning of the second day of the meeting, and shall be elected by ballot. Each officer shall have his appointment for one year, and until another is elected to succeed him.

Laid over under the rules.

Reading of minutes dispensed with until this evening.

Dr. Woolsey moved that the resolution offered by Dr. Stout be reconsidered.

So ordered.

Moved that the whole subject matter be laid on the table.

Carried.

Meeting adjourned until 7:30 P. M.

EVENING SESSION, APRIL 18TH.

Society called to order by the President, at 7:30 P. M.

Minutes of morning and afternoon sessions were read and approved.

Dr. M. M. Chipman presented a paper entitled "Hygienic Education for the People," which was referred to Committee on Publication.

On motion of Dr. Woolsey, the dues of Assistant Secretaries were remitted.

Dr. Woolsey presented the following resolution:

Resolved, That the several local medical societies and Boards of Health throughout the State be requested to urge their respective city, county, and town authorities to establish ordinances or laws requiring all practitioners of medicine within the limits of their respective jurisdictions to report in writing to their respective Boards of Health all cases of the more dangerous epidemic diseases coming under their professional observation.

Adopted unanimously.

Dr. Gibbons read the paper of the evening on Feticide.

Referred to Committee on Publication.

Dr. Scott presented the following:

Resolved, That this society appeal to all ministers of the gospel throughout the State, and urge them to use their influence in all proper and available ways to discourage the inhuman, degrading, and extensively prevailing practice of feticide.

Adopted.

Dr. Gibbons returned his thanks to the lady members of the society for the presentation of a beautiful bouquet after his lecture.

On motion of Dr. Scott, the thanks of the society were tendered the President for his management of the business of the society.

Unanimously adopted.

Thanks of the society were tendered all retiring officers.

Also, to Permanent Secretary. Also, to Committee of Arrangements, and the profession of Santa Clara County.

The minutes were then read and approved.

The President appointed Drs. Cole and Wilder to conduct the President elect to the chair, when he was introduced by Dr. Ayer.

Dr. Orme returned his thanks in an appropriate manner.

The President then declared the Eighth Session closed.

GERRARD GEORGE TYRRELL,
Permanent Secretary.

[After the adjournment, the society was entertained at the Auzerais House, where a magnificent banquet was prepared under the auspices of the Santa Clara County Medical Society.]

ANNUAL ADDRESS

DELIVERED BEFORE THE

CALIFORNIA STATE MEDICAL SOCIETY.

BY WASHINGTON AYER, M. D.

LADIES AND GENTLEMEN OF THE MEDICAL SOCIETY OF THE STATE OF CALIFORNIA: Again we have assembled to deliberate upon the wisest plans to pursue in the practice of medicine, and discuss such measures as in our dispassionate judgment we believe will advance the interests of the profession and secure the greatest good to our fellow-men.

The physiological laws regulating and controlling the functions of organic life, we recognize as fixed and as immutable as the fiat which spake worlds into existence; and we are to expound these facts to the afflicted, and penetrate the *arcana* of thought and physiological action of animated nature, and disclose to others the hidden operations connected with the sciences of Zoology, Pathology, Therapeutics and Metaphysics. The study of Metaphysics in its application to medicine is too much neglected. The endosmotic and exosmotic action of thought upon the various elements and agencies of physical life present to the intelligent mind a most comprehensive field for investigation, and is strictly in accord with the old maxim—*mens sana in corpore sano.*

The various subjects which should interest the gentlemen of the profession especially, are all referred to their appropriate committees, and I will only invite your attention for a short time on this occasion to the "physician"—a very humble, self-sacrificing, integral part of the human

family. However familiar the term "physician" may be, it is well at times to hold the mirror of his life before the public, that his true character may be thrown back upon the slumbering memories of his past as well as the present deeds of valor and charity, and the world become aroused to a consciousness of his labors and his voluntary suffering. A long line of medical lights have come down to us from the earliest history of medicine, growing brighter, and diverging in their course, until all cognate sciences are becoming absorbed in medical learning, and the physician now stands prominent among the scientists of the world.

The days of Hippocrates, Damocrates, and Paracelsus, compared with the present, were like the first glimmering of the daylight which precedes the resplendent day.

They were hard students, and with care and solemnity opened the sealed book in which were discovered the wonderful mechanisms of man. They understood very well the anatomy of the body and the functions of many of the organs, but had a very erroneous idea of the circulation of the blood, which was left to the celebrated Dr. Wm. Harvey to discover, early in the sixteenth century, and in 1628 he made known the result of his researches, in a work entitled "Exercitationes de Motee Cordis et Sanguinis."

They knew nothing of endosmosis, or exosmosis, or of the reflex action of the nerves, or of the functions of assimilation, and for a long time the size of the pineal gland was an evidence of the energy and force of character of the man. Yet they were earnest students, and honest in their convictions of what they considered truth, and yet possessed but little true medical science, or little knowledge of the healing art. And yet they did much to overcome the prejudices of the less learned in their pursuits of the knowledge of anatomy and the application of remedies to disease.

While these men were prominent leaders among the men of their day, we are led to reflect that the age and

country in which one lives eminently determine or specially modify the real, true character of the statesman, the scholar and scientist, and often apply the test of genuine greatness only to the discernment of its own people, and not for future ages to determine by unfair comparisons and criticisms.

While we admire the wisdom of Socrates, the philosophy of Plato, the elevated statesmanship and finished oratory of Cicero; the scientific breath of Aristotle and the teachings of Galen, the enlightened physiologist of his age, secure the greater admiration of the intelligent physician, as in his estimation they tower above all others; for they devoted their lives in the interest of science and the cause of humanity.

Having thus for a few moments turned our attention to the early founders of medicine, we will now bridge over the little period of a few centuries, and stand in the presence of a more thorough knowledge of medical science, and the higher culture at the close of the nineteenth century. Here we find the physician robed with professional honors, and the leader in many of the social and civil reforms of advanced civilization.

His life study is to know how he can best serve his fellow-men, and his inventive genius and his great discoveries in the healing art make him prominent among them, and he feels a consciousness of doing his duty faithfully, and receives the earnest prayers of the afflicted, with only a small pittance of the substance for the pabulum of life.

Upon the battle fields and in the hospitals he is the most vigilant friend of the sick and wounded. Through the weary hours of the night he watches by the sick bed, in squalid apartments, with no other compensation than the "God bless you" of his patient; yet there are many illiterate pretenders among us, holding diplomas, who dishonor the profession, and are unworthy of any position among honorable men.

It is quite possible that the errors of the profession have in times past contributed much towards fastening the incu-

bus of quackery upon society, and while the human mind is filled with a love for the marvelous, this incubus will continue to exist, in some form, in spite of all prohibitory legislation.

Yet the profession can do much to modify the evil by demanding that the standard of medical education shall be increased. And now that we have a law regulating the practice of medicine, we should give it our earnest support, and compel the public to respect our edicts in its behalf. As the profession has taken this step in the right direction, I would now recommend that a committee be appointed to be called the "Committee on Social Evils," whose duty shall be to investigate this subject, and report to this society the result of their investigation at its next meeting, that a Legislative Committee may then be appointed to secure such legislation as may be consistent with the objects in view as a sanitary measure.

I am satisfied that the public are wholly ignorant of the amount they are paying annually in consequence of this evil, and am assured that not less than one-ninth of the expenses of the County Hospital of San Francisco is for the treatment of venereal diseases. In this connection I also suggest, as a private enterprise, that a Venereal Hospital be established in one of our leading cities, by some of the prominent members of the profession, that the advertising quack may no longer endanger the transmission of the disease to the innocent offspring of misguided parents. We have a sacred trust confided to us as guardians of the public health, and we must leave no avenue unguarded for the approach of the enemy.

From July 1, 1876, to June 3, 1877, the whole expense of the City Hospital was $73,534 34. The number treated was 3,012; of this number 348 were venereal patients, which cost the city $8,484 24, or nearly one-ninth of the whole expense. And besides this, it is probable that not less than 1,500 cases of venereal disease are treated annually in private practice in the State of California.

And I now congratulate this society, and the profession

at large, that the course of the medical schools of California has been changed, and that after this term three years will be required for graduation; and I have no doubt that the Professors have been guided by the prominent idea that this extended course is one of the best means to accomplish so desirable and important an end as to overcome quackery.

And I am assured that the present requirements of our medical schools compare favorably with any of the medical colleges in the older States of the Union.

This is as it should be, for the demands of civilization and progressive medicine are imperative for a higher culture and a more thorough knowledge of medical science, as well as a knowledge of some of the branches of the cognate sciences, that the profession may be better prepared to discharge the various duties in the cause of suffering humanity.

Another forcible way to overcome quackery, or to modify the nuisance, is for the physicians and the professors of medical schools to see that none enter upon the study of medicine who have not by nature some fitness for the profession. And when any young man who has no particular fitness or fondness for the practice of medicine applies for a pupilage to any physician, and his friends are anxious for him to engage in one of the learned professions, he should be discouraged from entering a medical college, and be advised to read law or theology, for it is better to endanger the souls under his charge, or the rights and title to property, than have our graveyards filled with the victims of medical ignorance and diplomatized quacks. And, besides, if one reads law he will not be expected to remember what he has read, or the special application of any principle of law in any important case, and will be given the privilege of refreshing his memory by consulting his authorities in open Court.

And yet this class of attorneys are pleased to badger the physician when upon the witness stand, and there is no opportunity to reply to their insults, and I doubt whether

there are many true gentlemen in our profession who would care to reply.

But what would the physician do if called to a case of primipara with a placenta prævia and an inertia of the uterus, with the life-fluid ebbing fast—or rather what would the patient do under such circumstances—if the physician did not understand his business and was obliged to go to his office to consult the authorities? If she didn't die we might almost consider it a case where there was an interposition of Divine Providence, rather than attribute her recovery to the skill of her medical attendant.

In our profession there should be an eternal fitness of things, and things should fit eternally for the safety, advancement, and utility of life. Life is too sacred and of too much consequence to be placed in the hands of thoughtless men, and yet there are many intelligent persons who will pay more to secure the title to a small piece of property than they are willing to pay to secure a new lease upon life; and it would seem, in some cases, that the property had the greater intrinsic value. But the physician has nothing to do with such comparative values; his estimate of value is in his own services, which will be to obtain the largest amount his patient is able and willing to pay, and he can never get too much.

The son born of a woman with strabismus, and whose father has bow legs, is not responsible for not looking in a straight line and waddling along the pavement of a busy city, for no sensible person would expect anything else of him. And the same moral and intellectual deficiencies exist in the offspring that are observed in the parent, just the same as the physical deformities are observed. So there must be a fitness in the individual for any particular business, or one cannot meet with success in any calling of life; and any effort to draw out the dwarfed intellect from the "acres of untilled brain" will be so much labor lost and so much effort to fasten unworthiness upon the credulous and lessen the dignity of our profession. It is said that "education forms the common mind," and makes the

man, and the truth of this declaration I would not wholly ignore; but unless man is first made by the Almighty, no amount of learning can do it. And I do not say this in levity, but with the most profound reverence. And there is a great mistake made by parents oftentimes when they urge their sons to enter one of the learned professions, for without a particular fitness by nature for a professional life, few will ever succeed who engage in the labors of such a life. There are and always will be a plenty of well-informed medical men to attend to the wants of suffering man, and there is no occasion to put the medical mill in operation to grind out ordinary material. And yet we have reason to believe that there have been medical schools which were willing to encourage the matriculation of poor material provided the *fees* were all paid. Such schools jeopardize the dignity of the profession and cheapen the educational commodity dispensed. It is better to be the lone offspring of a lion than one of a numerous brood of chicks.

We must not forget that the mental powers of men are as diversified as the soil of the earth, and that minds must be classified in order to determine the fitness of any one for any particular calling in the walks of science.

The prudent farmer would not plant his orchard among the barren rocks, nor select the wet adobe soil for his garden of roses and flowers of the sweetest perfume, for no amount of tilling or reclaiming could ever prove the fitness of such a selection for the growth of fruit or the cultivation of the beautiful, for the fruit will grow small and the flowers become of lessened beauty.

And so it is with some minds upon which may be poured a continual stream from the fountain of knowledge, for the soil is not materially enriched, and the fruit is dwarfed and blighted, while upon other minds fair efforts produce marked improvement; others yield a liberal harvest of original ideas by good culture, and like the alluvial prairies adorned with fruits and flowers, only require the introduction of

seed to afford all the rich varieties of products that may be desired.

Men with such minds we should encourage and none others to enter the profession, for they only will become eminent and useful in the practice of medicine and honored members of society.

* * * * * *

I desire to call your attention to the importance of some further legislation upon the subject of State Medicine.

Progressive civilization has made State Medicine a necessity, and the physician has become the guardian of the welfare of the people, to see that all sanitary laws are enforced; he determines the value and purity of drugs and medicines in the market; calls the attention of the officers of law to the baneful effects of nostrums which are vended for criminal purposes—as fœticide, which is the abomination of the age, a curse to civilization, and a foul blot upon the history of a Christian people.

He is also the chief sentinel upon the sanitary fortress of the nation's defense, to summarize and classify the various morbid influences which seriously disturb the health and comfort of the people.

And State Medicine urges him to obtain and preserve vital statistics, to enforce vaccination, see to the quarantine of vessels infected with loathsome diseases, attend to disinfection, which service is of the greatest importance to the State, and daily proves the great value of medical science.

But in order to obtain the statistics which properly come under the head of State Medicine, some more clearly defined law should be placed upon our statutes, which may be enforced without requiring the physician to assume the burden of labor unless he is properly remunerated; for it is now impracticable for a committee appointed by any State Medical Society to obtain such information on this subject as will enable them to make a report that will present any thing more than a synopsis of the facts sought to be gained.

The laws regulating State Medicine should also be most

comprehensive, and liberally provide for the remuneration of the gentlemen who serve as "medical experts;" and our medical colleges would meet a pressing need in many criminal suits if they would be a little more exacting and a little more in earnest in the instruction of medical jurisprudence.

For the physician who goes into Court with a very limited knowledge of forensic medicine, and is burdened with the cares and anxieties of his private practice, will be quite sure not to acquit himself in a manner to secure the fullest confidence of the Court and jury in his favor. Besides, being detained in Court as an "expert," more is expected and required of, and less provision made for the physician in proportion to his services, than of any laborer or other professional man in the commonwealth; and there is no more justice in requiring him to give his services as an expert free of charge, than there would be to require the chemist to make his analysis free of charge to the State, on the plea that such service was in behalf of science and humanity.

The attention of this society was called to this subject at its last meeting; yet it seems to me to be of such importance that I cannot well refrain from calling your attention to it again on this occasion.

As you are aware, a bill was introduced at the last session of our Legislature, having clearly in view the means by which the wrong of which we complain about "experts" might be remedied; but it failed to meet with that attention and support to which it was entitled, and consequently we are left as in times past. I would recommend that this subject be referred to a special committee, to report at our next meeting.

In conclusion, it is my sad duty to announce to you the deaths of Dr. P. Chamberlain and Dr. John C. Van Wyck. They were both members of the Board of Censors, affable and kind-hearted gentlemen, and by their decease this society has lost two of its worthy and highly esteemed

members, and the sick and afflicted are deprived of the faithful attention of two skillful physicians.

In another of our members the throne of reason has been invaded by strange hallucinations, and we behold one who a year ago was prominent among us, now bereft of reason and confined within the narrow limits of an insane asylum. And now—

His life is but a living death—
A sad, sad waiting here—
Whose hopes are like a faded wreath,
With no bright flower to cheer.

These examples admonish us how uncertain is life, and how uncertain the duration of our abilities to discharge its duties. But I will leave this subject with the Committee on Necrology, who will pronounce the fitting eulogy.

RECENT ADVANCES IN SURGERY.

By L. C. LANE, M. D.,
CHAIRMAN OF THE COMMITTEE ON SURGERY.

The task having been assigned to me of presenting to this association a Report upon Surgery, I find my undertaking, since the domain of surgical art and science is broad and of ill-defined bounds, by no means an easy matter. To include in such a paper details of facts which are well known, would be a piece of didactic work better suited to a class of students than to a body of well-instructed medical men. Again, if such a report were to confine itself to giving an account only of that which was discovered, or first announced yesterday, then it would run the risk of announcing as actual and established facts that which in future may be found untrue. Again, to dilate into the exhaustive details of an elaborate essay, would early awaken that symptom of a coming tertian or of actual ennui called oscitation, politely suggestive to the reader that there has been enough of it. Shunning, then, the well-known, which may be found in text-books, or the illy-known, which future experience is yet to reject or accept, or the tiresome details of an elaborate essay, the pleasing idea suggests itself that here is a splendid opportunity for a little personal surgical emolument in dilating upon the wonderful facts achieved in my own practice. Less sad than was the task to the Trojan hero, as he told Dido the varied fortunes through which he had passed, and of which he himself was a great part, would be my undertaking, were I to tell you of my own exploits. For example, of the brilliant dash which my lance made as it plunged into the fearful recesses of a paronychia, shunning the Scylla of a digital arteriole on one side and the

Charybdis of a similar ramuscule on the other; or of what a swell my scalpel cut as it made its way into a mammary abscess, and, *mirabile dictu!* the subjacent aortic arch was not touched by my blade; or with what unparalleled delicacy of manipulation my right hand thrust a probang into a diphtheritic fauces, and, lo! the vagus and cilio-spinal ganglion escaped intact; nay, more, the salivary spatterings were so dextrously shunned that my surgically knighted lappel came out of the struggle immaculate.

Were I to pursue such a course as that just hinted at, and present the same as the hither and remote limits of progress recently made in California surgery, the offering being in the shape of a little book neatly bound and well illustrated, besides the claim of precedent, economy might also be urged in its behalf, since the association would be spared the expense of printing, a most commendable item in these hard times, when labor riots like dark clouds are looming up in our political horizon, and retrenchment is inscribed on every banner.

In the commencement of the confessions of his life, Jean Jacques Rousseau says—that, at the final day of judgment, when all shall appear before the throne of the Eternal to give an account of their lives, he will present his book, saying to the Almighty, "Behold my life." Now, if with his proposed post-mortem impudence I were to present such a little book, purporting to be a Report upon the Recent Advances of Surgery, though it should have the effect of bread cast upon waters, when dropped into the hands of patients, and should be sweet in my own mouth, like its predecessor, I fear it would prove very bitter in the belly of this association.

With this preface, in which trenching upon the personal has been abstained from, inasmuch as I have adhered to Seneca's rule—*Dicere de vitiis, parcere personis*, viz: criticise vice, but spare names—I proceed without further delay to what seems to me the legitimate duties of a Report upon Surgery, selecting what appears to be important, and treating the same with brevity.

In the domain of surgery, the consideration and treatment of wounds predominates in importance over all other subjects. Though no statistics exist on which to base the assertion, yet I think it would be safe to affirm that much more than half of all cases demanding surgical care are either directly or indirectly traumatic in character; hence the necessity that the treatment of wounds should be as faultless as possible; and hence the reason why our generation has restudied the subject, and, as a result, both surgical science and surgical art in this department have undergone, recently, a complete revision. Hunter's exudation theory, which during a half century held sway as unquestioned truth, and was especially defended by Rokitansky, has been rejected as erroneous; and in the place of the retired plastic lymph, Virchow's connective tissue cell and Cohnheim's amœboid corpuscle are disputing for the ascendancy, and surgical pathology is inclined to compromise the matter by conceding to each agent a share in the healing process.

In like manner the mode of treatment of wounds is in rapid transition from old to radically new methods. In the olden times, which conservatism fondly calls the good and would fain have us lament the departure of, balsams and panaceas, all things in the range of the clean and the unclean, were invoked as healing agents; astrologic aids, remedies borrowed from dead and living bodies, from plants and from the earth, were sought to heal wounds; in the horoscope of modern surgery all these auspices or aids bring ill, since the coy maiden, Nature, is frightened away by them. It is now known that the wounded part contains and furnishes all the means for its restitution to integrity, viz: by a reversion to something akin to the primitive embryonic state, it evolves from germs living in its own soil the elements for closing the traumatic breach. Instead of the wounds needing astral, telluric, or vegetal aid, all such agencies are obstructive; and further, it is known that infinitesimal forms, as the vibrio, the micrococcus, and bacteria, by chance stealing into the wound, mar and throw into confusion the silently working agents of repair; and such

confusion having once arisen, we have the more tedious process of restitution by second intention, or, perhaps, no repair at all. To bar out the intruder micrococcus, and to prevent the bacterian from converting the wound into a pool of natation and propagation, is the great problem which the modern surgeon is endeavoring to solve.

Scotland, whence Great Britain has received many of her greatest men, has given to surgery two enduring names, viz: John Hunter and Joseph Lister. In the gloomy air of Lincoln-Inn-Fields the medical pilgrim finds a fitting monument to the one, viz: the Hunterian Museum in the Royal College of Surgeons. To posterity is reserved the honor of rearing a monument to Lister, for what he has done toward solving the antiseptic problem, though, I may add, that his cotemporaries have duly honored him by appointing him as the successor to the late Sir William Fergusson. Though I thus honor Lister in conceding to him the merit of having been the pioneer in antiseptic research, and of having introduced the best modes of dressing wounds as yet known, still, to quote his own language to me while lately abroad, it is probable that better antiseptic agents than any now known remain yet to be discovered; and, besides, his assistant told me that scarcely a week passed that Lister did not bring some new agent to have tested as to its antiseptic properties. So, unlike most men who are declining from the vital meridian, whose opinions have become stereotyped, on the contrary, Lister has not thrown his carbolized vesture around him with the purpose of carrying it to his grave, but he still remains imbued with the true spirit of progress.

It was often a matter of amusement to me to see how differently the antiseptic treatment was received by the various European surgeons whom I saw. As a rule, it was adopted by young men, and often with enthusiasm, whilst among old men the majority were disposed to scoff at it. A few, from their positions as teachers, were compelled to examine it, and even make a trial of it; yet these did so hesitatingly, grudgingly, scoldingly. One very eminent

master in surgery, though he often used it, never failed to let drop some satirical epithet against it.

It having a few years since been discovered that microscopic germs cannot penetrate through cotton wadding, a French surgeon at the Hotel Dieu conceived the idea of adopting this as an antiseptic dressing. This plan, called by the French the *dressing à louate*, that is, by wadding, is as follows: Where a limb is amputated, after the vessels are secured and the flaps are placed in proper position, the stump is wrapped in an immense mass of cotton batting, and the cotton is thence to be continued about the body until a large part of the patient's body is hidden in cotton. After application, the cotton is to remain undisturbed for a number of days. By this plan healing by first intention is often secured. The wadding dressing, first resorted to by J. Guerin, has the advantage of being much cheaper than Lister's mode; and besides, it is rare that one would be where the only ingredient, viz: cotton, could not be procured.

During the last three months, the Society of Surgery and the Academy of Medicine in Paris have had under consideration the so-called coxo-femoral disarticulation, or amputation through the hip joint; and in the discussion upon the matter, all the leading surgeons of France have declared their ideas in reference to the best method of dressing wounds resulting from amputation. All agree that there should be more caution in reference to the loss of blood during operating, and that to this cause is to be attributed the so-called death from shock; and that to avoid such loss of blood, when it is possible, one should tie the main arteries before severing them. This plan, claimed as original by Verneuil, has, to my certain knowledge, been practised on our coast during the last ten years. Verneuil, to whom as an original thinker and operator may be assigned the first place in French surgery, has evidently made an error in advising that the flaps should be left open during the after-treatment of the coxo-femoral disarticulation. To digress for a moment from the subject, I will advert to the

recently published observations of Verneuil concerning the influence which hepatic and renal disease, or any grave constitutional trouble, may have on operative traumatism. According to Verneuil, death following an operation which was not grave within itself, is to be imputed to the visceral or constitutional complication.

While on this subject, it should be mentioned that at a late meeting of the Academy of Medicine, when the matter of dressing wounds was under discussion, Pasteur, the well known authority on the subject of germs, stated that vibriones, which, lodged in pus, are capable of developing into higher forms, are anæribioid, that is, die if exposed to air; but if they are retained in a vacuum, or in carbonic acid gas, they are developed.

Another point worthy of attention by your reporter, is the explanation which has lately been offered by Duret, of what occurs in concussion of the brain. Instead of the trouble depending on a sudden molecular agitation of the cerebral structure, Duret, by the slaughter of near a hecatomb of dogs, has satisfactorily proven that the lesion is produced by the sudden movement of the liquor cerebro-spinalis towards the base of the brain; such movement, if severe, causing laceration of the fourth ventricle, and consequently injury of the nerve-nuclei seated in the medulla oblongata; and from such lesion of the radical nucleus of the vagus, one can explain the irregularities of breathing and of cardiac action seen in such concussion; also, from lesion of the nuclear origin of the motor oculi, the resulting palsy of the sphincter muscle of the iris arises. And as counter-proof of the same, Duret opened directly into the fourth ventricle, and then with his little hammer and staff, he, as a pianist, successively touched the nuclear keys of nerve-origin, and, at will, evoked a pathological response in the lungs, heart, eye, or face.

I will venture to introduce into my paper an interesting fact which has lately been discovered, that the inflamed lung tissue reverts in the epithelial and sub-epithelial structure of its tubules. to the primitive embryonic type; the

same occurs in the antecedent stages of renal and hepatic cirrhosis, where inflammation has been provoked by art in the ligation of the bile duct, or of the ureter; or by nature in the closure of these outlets by a gall stone or a renal calculus. An integration of these facts gives us glimpses of a beautiful law, viz: that under traumatism, it matters not whether internal or external, the structures of the animal organism recoiling, tend to revert to their simpler primordial forms, viz: such as are met with in the embryo, the organism meanwhile straying but slightly from the primitive epiblastic, mesoblastic, and hypoblastic routes traced out for it in the map of life by the hand of nature.

In the treatment of cysts, or even of abscess, located in the abdominal cavity, when of hepatic or splenic origin, an innovation upon the former method of treatment should be noted. Instead of aspiration or of evacuation by opening with the bistoury, the plan has lately been resorted to of opening with the trocar and canula, and after emptying the fluid as far as possible, to allow the canula to remain inserted; the stationary tube is to be closed, but to be opened from time to time, as the fluid may reaccumulate. I saw a splenic cyst treated in this manner, successfully, by Pèan at *L' Hopital de Saint Louis.* Some recent personal experience in this way of treatment has not been crowned with that success which has been claimed for it by its advocates.

In the surgical department of the eye, I witnessed the operation for extraction of cataract as done by the leading men in England, Germany, and France, and am able to report that there is occurring a gradual departure from Graefe's sclerotic cut to a corneal incision—that is, there is a reversion to some modification of the old plan of Daviel. Liebreich has wholly discarded the operation of his master Graefe, and W. Wecker has done so in the most of cases. It is singular that while all the surgical world was so unanimous in regard to the perils to vision which result from injuries of the ciliary body, that they were so blind to the

risks to which this body is exposed every time that the Graefean sclerotic cut is made. Graefe's expert hand could, no doubt, guide his chariot wheel clear of the dangerous mete, while other hands, less adroit, would fail to come off Olympian victors.

The subject of sympathetic affection of one eye, where the other is the seat of disease or injury, has been the matter of much discussion during the last ten years, and has revealed the fact, that a sound eye may thus become, if not blind, at least much impaired in its function. Students of this subject have not agreed upon an explanation of the sympathetic or secondary trouble. In order to save the sound eye from such attack, it was early proposed to remove the afflicted one by the procedure known as enucleation. Thus on *a priori* grounds it was claimed that the exciting cause being removed, the patient would be safe. Where the diseased or wounded eye is already blind, or beyond the hope of rescue under proper treatment, and still remains the source of constant pain, no one would deny the propriety of its removal, but whether such removal will save the sound eye from sympathetic trouble, is now becoming doubtful; in fact, observation has shown that the reverse may occur. Indeed, Stilwag Von Carion recently stated in a lecture which I heard, that in some cases where he had practiced early enucleation, still sympathetic trouble afterwards appeared in the other eye. In fact, he intimated that the traumatic lesions accompanying the enucleation may hasten the morbid development in the sound eye. This matter was recently the subject of discussion at the International Medical Congress, which met in Geneva. The final vote was favorable to enucleation where the eye was the seat of constant pain; but the opinion prevailed in accordance with Stilwag's, above stated, viz: that removal of the diseased eye does not secure the sound eye from sympathetic attack. The mode of enucleation has lately been much improved by the ingenious Brudenell Carter,

of St. George's Hospital, London. Carter's plan is, before removing the diseased bulb, to sieze and ligate the several occular motor muscles, so that after the globe is removed, these muscles may be so tied together that perfect motion will be preserved to the stump. Thus the nearest possible approach is made toward securing perfection of movement to the artificial eye. In two cases in which this mode of enucleation was practiced, the advantages claimed for it by Carter appeared to me to be fully realized.

In case of perverted position of the eyelid, Verneuil has recently introduced a new operation, which he names tarsoraphy, which signifies literally, sewing the lids together. This procedure may be used in case of inversion or eversion of the lid. The theory in reference to it is, that after the lids are united by suture, the malformed tarsal cartilages are forced to assume the normal position, and if kept so for a sufficient length of time, they will retain their form. The time requisite to complete a cure in such case is not less than three months. In Verneuil's wards one may see, any day, one or more persons walking about with one eye thus sewed up. The long closure does not seem to injure the eye.

The treatment of cleft palate, where the fissure involves the bony arch of the mouth, has recently undergone much improvement, by the adoption of the osteo-plastic process of Dieffenbach. This, the so-called osteo-plastic uranoplasty, remained for a number of years quite forgotten in the works of Dieffenbach, until a comparatively late date, when the operation was revived by the late Sir William Fergusson, and has become the happy means of rescuing many mouths from terrible deformity, as well as from the very unpleasant alternative of resorting to a dental obturator to close the fissure. The leading idea in this operation is to detach and move into the breach a portion of the adjacent incomplete arch; and nature, who has left open the median fissure, will not tolerate the lateral gap which the surgeon's hand has made, but sets to work and soon repairs it. Provided the subject be young and healthy, and the

opening be not of syphilitic origin, the surgeon, by patient work, can effect a closure. In two cases, during the last year, the writer has practiced it with successful issue. The operation, even in the expert hand of Sir William, was so tedious that he was accustomed to remark, that a class of students who was patient enough to sit to the conclusion of the operation, deserved a premium.

The localization in the brain of the motor centers of the upper and lower extremities by Fritsch and Hitzig has given an indication for trephining, where hemianæsthesia and hemiplegia have followed apoplectic seizures; likewise, where the conditions date from traumatic cause. Every pathological discovery has eventually as its correlate a therapeutical application; and though the seed may be long in maturing, yet sooner or later, the attentive practitioner will reap a harvest from such knowledge. Yet the use of the trephine in this case to lift the offending clot from the oppressed motor center is a procedure which never can receive the sanction of prudence; as the middle term of the syllogistic formula must be by no means ambiguous, so in the classic formula which surgery has adopted as its guide, viz: *cito tuto et jucunde*, our middle "tuto" must be so amply distributed as to guard the field. Tried by this rule, trephination is clearly illicit, and cannot be accepted as the therapeutical correlate of Fritsch and Hitzig's splendid discovery.

In consequence of the dangers attending Cæsarian section, of which there has not been one successful case in France since 1787, surgeons have been recently endeavoring to lessen the danger by various modifications of gastrotomy. The last phase of the operation is the so-called procedure called gastro-elytrotomy. By this method the peritoneal cavity is not opened. The incision, instead of being vertical as in the old Cæsarian section, is made transversely, reaching almost from one anterior iliac spine to the other, parallel with and just above Poupart's ligaments and the pubic arch. The final opening is to be made through the upper extremity of the vagina, the uterus being left

quite intact. This operation cannot be undertaken until the uterine cervix is thoroughly dilated, so that the child may be removed through the mouth of the womb, through the supra-pubic cut. The advocates for this operation claim that it has so many advantages that it must take the place of the old mode of Cæsarian section.

In the section of orthopædic surgery, I observed at the Lariboisiere Hospital, that in cases of badly bow-legged children, the attending surgeon Tillaux, instead of resorting to the slow methods of straightening by means of mechanical appliances, forcibly straightened the limbs, even though to accomplish this it was required to fracture the limb. The deformity being thus overcome, straight splints were applied to the legs so as to retain them so. The results obtained were very satisfactory.

To account for genu valgum or "knock-knee," Ollier has lately offered a very ingenious explanation, viz: that the deformity proceeds from abnormal development of the epi-[illegible] of the tibia. According [illegible] instead of being developed [illegible] knock-knee they have a [illegible] inward.

[illegible] is amazing of [illegible] manner of dis-[illegible] Congress. This [illegible] de-[illegible] nasal passages. [illegible] in the [illegible] and [illegible] [illegible] [illegible]

resorted to of directly opening the nose, so that the affected structure would be open to both sight and touch. For opening the nose numerous incisions have been proposed. The one generally practiced is to make two lateral, deep, sublabial cuts, so that the nose may literally be lifted up, and through the door thus made the diseased structure may be removed. Another method is the median division of the nose, so that either wing may be turned down, thus making a window through which further operative work may be done. The first method is preferable, as after accurate replacement of the nose there is but a trifling scar left.

In the treatment of urethral stricture forcible dilatation is being abandoned, and the slower method of gradual dilatation is again rising into favor; but where the canal is impermeable, perineal urethrotomy—the so-called *couto-mere*—is being practiced by the surgeons of St. Peters Hospital for Urinary Diseases, London. Mr. Teevan, the able champion of urethrotomy, has collected together nearly forty cases of death following forcible dilatation.

During the recent epidemic of diphtheria in this State, the operation of tracheotomy was frequently performed for the relief of cases where death was imminent from strangulation. For some years past medical and surgical opinion here has been undergoing a gradual change in reference to this matter. Twelve years ago tracheotomy was rarely done, even in cases of pure croup; to-day almost all our surgeons are agreed as to the propriety of operating in all cases where the child is threatened with death from strangulation, no matter whether the case be one of croup or diphtheria. The result has been that several lives have been saved which without operation must have been lost. Among forty cases which I have operated upon during the last fifteen years I reckon twenty per cent of success, and among these was one of the worst cases of diphtheria which I have ever seen. The nares were wholly occluded by the membrane, and the fauces, larynx and trachea were wholly lined with the same, and so tenacious was the diphtheritic

growth of life, that after its removal from the windpipe below the tracheal incision it reappeared there on the second day, so that it was necessary to remove the canula and introduce a straight whalebone probang, by the aid of which the membrane was detached and dislodged. After this the case proceeded without interruption to recovery.

Within the past few years the actual cautery has been coming into fashion, especially for the removal of growths where hemorrhage is feared. For instance: it is being employed for the extirpation of the carcinomatous uterine cervix, and for the removal of angiomata or blood-growths in children. For such operations, the use of the actual cautery is rational and well indicated, but to make it a substitute for the scalpel in the performance of large operations, such as amputations, removal of the female breast, and even lithotomy, can by no means be recommended, and I suspect will not be attempted by any of our surgeons, though I witnessed such use of it in Paris. For example: Pèan removed thus an exceedingly large carcinomatous breast, and Verneuil thus operated for stone, and recently I see that Tillaux has thus disarticulated the femur, though to sever the immense flaps in the latter operation, the thermal generator failing to generate a sufficiency of heat, Tillaux was forced to complete the operation with the knife.

The favorite mode of generating the heat employed in these operations is by means of a galvanic apparatus. One great objection to the method is that the galvanic apparatus is constantly getting out of working order, and can only be put in action again by an experienced electrician. In consequence of this defect, the galvano-cautery has lately been to some extent superseded by a thermal cautery. When Richardson invented his frigorific or freezing apparatus, he did not suspect that the same could be equally well used for burning; all that is needed to do so is to light a match and touch the escaping ethereal vapor. And now, if a fenestrated tube, ending in a cutting point, be caused to

ensheath the flame, we have the cheapest and most convenient of all thermal cauteries.

The use of heat for surgical purposes is not new, for in an aphoristic trilogy, in which Hippocrates has compressed all therapeutics, it is alluded to, viz: "What medicine does not cure the knife cures; what the knife does not cure fire cures."

REPORT ON MEDICAL EDUCATION.

By H. S. ORME, M. D.,
CHAIRMAN OF THE COMMITTEE ON MEDICAL EDUCATION.

MR. PRESIDENT, LADIES AND GENTLEMEN OF THE CALIFORNIA STATE MEDICAL SOCIETY: Medical education is an old and hackneyed theme. For many years the best minds in the profession, in this country and Europe, have brought to its consideration the great wealth of their judgment and opinions, and the testimony of their experience.

Distinguished professors, whose patient researches and tireless investigations have enabled them to win laurels as instructors of aspiring pupils, have felt that their life-work was unfinished if they failed to impress upon the rising young members who were to succeed them, the incalculable importance of a higher standard of education than had prevailed in their day.

Perhaps a firm belief in the correctness of the adage, that "Truth is mighty and must prevail," has been the sheet-anchor of their ever-distant hope, and that its realization is being witnessed by us in the return, after many days, of the bread which they have so persistently cast upon the waters.

In contributing this paper to the already voluminous literature on the subject of a higher medical education, I shall offer nothing new, but shall merely pass in review what abler co-laborers in the cause have said and done, and present such suggestions as have been dictated by the light of experience and observation.

The first point which has been established by the recent discussion of the question of medical education, is that there are too many medical colleges in the United States.

The supply of medical men has long since exceeded the demand, and the profession is overcrowded; especially is this true of the Pacific Coast.

In California the ratio of physicians to the population was, according to the census of 1870, as one to 445; in Oregon it was one to 441; in Nevada, one to 386; in Arizona, one to 439. In the Eastern States the average is noticeably less. For instance, in Minnesota, it was one to 1,093; in Wisconsin, one to 1,043; in North Carolina, one to 937; in Rhode Island, one to 836; in Pennsylvania, one to 727; in Connecticut, one to 790; in Maine, one to 766; in Massachusetts, one to 711; in Georgia, one to 770; in Florida, one to 757; in New York, one to 642; in Virginia, one to 576; and in Indiana, one to 465.

Evidently the young and inexperienced graduate in medicine prefers to try his fortunes in a new country, where there is likely to be less discernment and criticism on the part of the people.

The number of physicians in the United States in 1870 was 62,383, equal to one to 618. The number of medical colleges was 94, or a proportion of schools to population, as one to 477,392.

In confirmation of the above figures, the Special Report of the United States Bureau of Education, by Professor Davis, shows 2,200 graduates for the years 1875 and 1876, from 65 regular medical colleges. So that when it is considered that several colleges did not send in any returns, and that there were 600 graduates from Homœopathic and Eclectic institutes, and the colleges of Pharmacy, it is safe to estimate the yearly number of graduates at not less than 3,000.

For purposes of comparison it may be stated that in Great Britain there is one medical man to 1,672 people, and one medical college to 1,705,895 persons; in the Austro-Hungarian Empire, one to 2,500 persons, and one college to 6,000,000 of population; in Germany, one to 3,000, and

one school to 1,785,248; in France, one to 1,814, and one college to 6,000,000 people, as in the Austro-Hungarian Empire.

These are suggestive contrasts, and it is painfully apparent that the United States is the medical hot-house of the civilized world, having reduced this process of forcing to well nigh a fine art.

The result is that every year floods some 3,000 unskilled and mostly incompetent men upon the country, whose diplomas guarantee them license to trifle with human life.

This being so, we must all agree that there are too many medical colleges in this country; that the standard of elementary education required of the matriculate is too low; that the curriculum embraces too limited a range of research; that clinical lectures as a rule are little short of formal theorizing; that the course of study is too brief; and finally, that the whole business of making doctors out of raw material, sadly needs reforming.

Has anything been done to remedy these evils? We think there has; the bright light of a new day dawns upon us from the East. The Medical School of Harvard University, in 1871, as you are aware, inaugurated a system of education in that institution, which has stood the test of experiment for over six years, and has fairly won for that venerable university the imperishable honor of being the pioneer in the greatest of modern medical reforms.

Dr. John M. Browne, in his admirable and succinct report to this society last year, has given us a graphic and satisfactory account of this new departure in medical education. I refer you to that report, and with the important suggestions contained therein I am sure we all concur; more especially regarding his recommendation, that the "Medical Department of the University of California be made to approximate as closely as practicable to the present organization of the Medical Department of Harvard University."

This recommendation I am happy to announce to you has borne good fruit. The Medical Department of the

University of California and the Medical College of the Pacific have each conformed to this new system, and have formally established a three years' graded course of medical instruction in their respective schools. This is also gratifying to our sense of local pride, as every true Californian must feel a deep interest in the development and culture of all those who enter upon the study of our profession, and especially in the youth of this coast. These schools are attaining high rank, and we have reason to hope will soon be second to none in America.

The Medical Department of the University of Pennsylvania, the first established medical school in America, has also announced to the world that the plan or system of medical education which had been conducted in this institution for more than a century, has been replaced by a higher and better system. We learn from their annual announcement, that "the present reform is designed chiefly to introduce into the official curriculum of medical study the methods which have long been used in European schools, and which in all other departments of science have given vitality and practical utility to the older didactic system."

It is also claimed that the Chicago Medical College, the University of Michigan, and the University of Syracuse, have adopted this system of higher medical education.

These notable examples are worthy of emulation by other medical schools, and deserve the heartiest encomiums at our hands. Measures of reform, to be permanent and thorough, must come from the profession itself.

The medical schools of this country must follow the example of the British and Continental schools, in rigidly rejecting applicants who are not properly qualified to matriculate.

As it has been truly said, "the first step towards improvement in any art or science, must be the faithful exposure of its wants and deficiencies," a large number of representative medical colleges, feeling the effect of this

deficiency, have formed an association for the purpose of perfecting the system of medical education.

Dr. Pepper, in his elaborate and valuable "Introductory Address before the Class of 1877–8, of the Medical Department of the University of Pennsylvania," says: "It is by no means designed to restrict the study of medicine to those who are fortunate enough to have enjoyed a collegiate education; but, as it is necessary to compress the purely technical studies into as short a period as possible, and as certain habits of application, and a certain amount of general education are requisite to enable the student to pursue to the best advantage the studies of the medical school, it is in the highest degree important that he, unless already a graduate of a literary college, should be expected to pass a preliminary examination on the elementary branches of a general education. The absence of such a preliminary examination in our system is therefore a grave defect, and one which operates as much against the interest of the student himself, as it does against the average qualifications of the profession."

Sir Wm. Gull, in his address to the General Medical Council of Great Britain, in May last, says: "It appears to me that every member of the Council agrees in this great fact, that the medical student of the future should be better educated than he has hitherto been, before he begins his professional duties, and that what has been done up to the present time is not enough. * * * * I know that there is a general feeling that men come into our profession untrained. Ours is an intellectual profession, and it is essential, I believe, that a large number of men should be turned back at first; for I am persuaded that if their education were tested on the threshold of their student's career, they would be advised not to enter upon the study of medicine. How little Latin many of them know—less of Greek—bad spelling—intellectual training, none—mathematics, none—physics, nothing—the higher training of the mind, nothing."

Recently the Vermont State Medical Society passed

resolutions deprecating the lamentable deficiency in the preliminary education of candidates for diplomas, and requires of every student a good academic education, a certificate signed by a majority of the Board of Censors, or a diploma from some accredited school or college. A list of questions is to be published and used in the examination of students desiring to study medicine, and the answers must be approved by a majority of the Board before the applicant can be passed. This is certainly a commendable measure of reform, and it is to be hoped that the policy inaugurated will be strictly adhered to, and that this example will be followed by medical societies in other States.

We might here refer to the Medical Department of the University of Virginia, which is organized and conducted upon a plan which differs in some important respects from that of any other medical school. The annual term of instruction is nine months, and the method of teaching is by recitations and demonstrations, as in the other departments of that university.

The arrangement of the lectures is such that the student acquires a competent knowledge of anatomy, physiology, and chemistry, before he enters upon the study of the principles and practice of medicine and surgery. "The graduation of the student is made to depend upon satisfactory evidences of attainments only, without regard to the length of time he may have been attending lectures."

The above system, pursued for many years at the University of Virginia, wherein the preparatory English examination is made prerequisite before applying for graduation, has many warm advocates. On the other hand, it may be claimed that it is impossible to qualify men for daily practice after so short a period of study, as it necessitates the candidate to pursue a system of cramming to obtain his diploma, which is greatly to be deprecated.

Even under the solemn promise from the graduate that he will pursue a post-graduate course, the above period of time is too short; for it is well known that of the 2,200 regular graduates each year, very few ever pursue such a

course, however much they may be impressed with its importance, pleading want of time or means, deferring the opportunity until a more convenient season, which never comes.

With this exhibit of the present status of medical education, both in the United States and Europe, before us; in the light of the experience and earnest protest of the many distinguished professors, teachers of our healing art; it is well to inquire if this society has anything to offer as a remedy for these evils, to which it is prepared to pledge the weight and force of its influence?

Your committee can only offer you such suggestions as have addressed themselves to their personal judgment and opinion as suitable measures of improvement. These are:

1. To admit only those as students of medicine who have a thorough preparatory liberal education, as proven by the test of examination.

2. That all colleges adopt and enforce a three years' course, or better still, a four years' course of study, and that the professors receive fixed salaries.

3. That the classes be graded, and the student advanced only after satisfactory and thorough examination in the studies of each grade preceding.

It would seem to be advisable, therefore, for the colleges to fix a common standard of preparatory education, to be required of medical students, before entering upon their medical studies. Such examinations ought to prove that they can at least speak and write their mother tongue correctly, even though they may not be familiar with Latin and Greek.

The period of the study of medicine in all countries save the United States, is never less than four years, and at least in one instance (Sweden), not less than ten years.

Professor Pepper, in alluding to a three years' course for students of medicine, says: "I believe it is universally admitted that it is simply ridiculous to expect any student to acquire a satisfactory knowledge of medicine in less than

that time." The importance, therefore, of a more thorough and extended course of theoretical and clinical study for those who expect to bear the honorable title of M. D., is too apparent to need further elucidation.

All the professors and instructors in our medical schools and colleges should receive fixed salaries, and therefore be independent of the number of students attending their classes, or who may have matriculated. This is the policy now followed in the medical departments of Harvard University, the University of Pennsylvania, the University of Virginia, and possibly of several other schools. This plan is also being adopted in England and Europe as the only legitimate method of divesting professorships of the element of pecuniary interest in the number of their students, which we all know is too often effected at the cost of suitable preparation.

The importance of having the classes graded has been time and again shown to be an absolute necessity, and has been therefore adopted in the best schools in this country and abroad.

If the number of medical schools in the United States could be limited by law, and only located at large centers of population, where the inestimable advantage of practical clinical and laboratory instruction could be enjoyed to the fullest extent by all the students equally, who attend the college lectures, it would be far preferable than to have so many small and half organized schools in different isolated localities.

I must now refer to one of the worst evils growing out of this loose system of medical education. I allude to the fact that medical diplomas and degrees are openly bought and sold, and the public have no way to distinguish between the quack, who is an unscrupulous and ignorant pretender, and the educated and skillful physician.

Imposters, quacks, and unprincipled adventurers who have failed to pass the required examinations either in America or Europe, or whose dishonorable acts ought to lead to their expulsion from all decent society, buy these

"Cheap John" diplomas, assume the title of physician, and enter upon the practice of medicine on an equality with respectable physicians.

As long as this pestilent abuse continues to exist, and it will so continue until it is blotted out by the strong arm of State law, there is little hope of soon regaining that hold upon public confidence and popular respect which has been lost to the regular profession, as the price of its inexcusable and shameful abuses.

For all this where can we find the remedy? It is obviously both impossible and impracticable under our governmental system to have general legislation applicable to this important subject; to have the kind of preparatory examinations defined; the proper arrangement of the curriculum; the course and length of study; or to appoint and control Examining Boards, before whom all applicants for license should appear for examination before being allowed to practice. But it appears to be entirely competent and feasible for the Legislatures of the several States to enact such laws as are necessary to protect society against empiricism in all its forms, and especially against these irresponsible medical outcasts, who are merely Bashi-Bazouks armed with fraudulent diplomas as letters of marque to prey upon human life.

Dr. N. S. Davis, in his "Special Report to the United States Bureau of Education," in alluding to this subject, says: "This unfortunate tendency of our experiment in permitting the freest rivalry in the establishment of medical schools, results directly and necessarily from the fact that the degrees they confer and the diplomas they give have been permitted throughout the whole country, with only a few temporary exceptions, to have all the force and effect of a license to practice medicine. It requires but a moderate familiarity with the motives that govern human actions, to see clearly that in a country where there are no entailments or estates, and where the great body of young men who seek the professions are without pecuniary fortunes, and largely dependent on their own industry for the

means of education as well as reputation and fortune in after life, the question, 'Where can I get the Degree of Doctor, which is equivalent to a license to practice, and a full admission into the ranks of the medical profession, in the shortest time, and consequently with the least expenditure of time and money?' exerts a very great if not controlling influence in determining where the student shall attend his college instruction. Not that medical students are a whit less conscientious in their desire to fully qualify themselves for the responsible duties of our profession than those who seek any other calling in life, but present necessity, or even convenience, easily controls when there comes with it the flattering thought that, at another time, after having earned a little money by practice, all deficiencies can be supplied by a season of reviewing in a school of the largest facilities.

"Just on this half unconscious delusion hundreds are induced to go where the requirements in time and money are least, regardless of all other advantages. The medical college in a country village, remote from all facilities for clinical instruction in hospital or dispensary, and but scantily supplied with subjects for dissection, can issue to its graduates just as large a diploma, couched in just as intelligible Latin, and having much the same influence with the people as the school in the metropolitan city, whose students can have the largest facilities for clinical and practical study. Hence it is not strange that, before the end of the seventh decade of the first century of our existence as a nation, about forty medical colleges had been organized, only sixteen of which were so situated as to afford their students any proper facilities for clinical instruction, and that those sixteen were resorted to by a little more than one third of the whole number of those who attended medical colleges.

"The general acceptance of the college diploma as full admission into the profession, thereby uniting in the heads of the same men the business of teaching and the power of

licensing, has continued to the present day. It is wholly responsible for the fact that, while we have sixty-four medical colleges to-day, one third of them are so located that they can afford their students no advantages for clinical instruction worthy of mention; and all, except three or four, still attempt to crowd instruction in all the departments of medicine upon the attention of mixed or ungraded classes, in annual college terms of from sixteen to twenty weeks, and exact only two such strictly repetitional courses for graduation.

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"Let the only question presented to the mind of the student, when choosing the college he shall attend, be, where can he most certainly obtain that amount and variety of medical knowledge which will enable him successfully to pass the examination of an independent Board of Examiners, acting under liberal and proper rules and modes of testing the student's knowledge? and we shall have nothing to fear either from the number or rivalry of our medical schools."

So writes Dr. Davis, one among the best authorities in this country. And in a recent number of the "Medical Record" (of New York), in indorsing and commenting on the above, we find the following, viz:

"As Dr. Davis very justly observes, the general acceptance of the college diploma as a full admission to practice, is wholly responsible for this deterioration. On the contrary, if there were State Boards of Examiners, independent of college faculties, who should grant licenses to practice only upon thorough examination, the case might have been entirely different, and these would have created a censorship dreaded at once by the candidate and by the college presenting him. For the candidate there would have been the risk of rejection; for the college, the loss of repute, consequent upon a too large percentage of such rejections. The duty that the American Medical Association has before it, therefore, is to press in every State for the creation of

such Boards, and for a uniform standard to be adopted by them."

This line of argument alone is sufficient to prove the necessity of State Boards of Examiners, with authority to go behind diplomas or certificates of graduation, and make inquiry into the qualifications of all persons who undertake to help a sick person get well.

Without such authority, a Board of Examiners is of but little practical use. If reckless and incompetent teachers, under the guise of medical colleges, shall persist in the crime of annually turning loose upon society gangs of medical bushwhackers, to trifle with human life, then society must be protected by a law strong enough to set aside any medical diploma when held by a person who cannot pass muster before a regularly organized State Board of Examiners.

We undertake to exclude from the profession all who have not regularly graduated from some chartered medical college, or who have not passed examinations and obtained licenses. That rule might, perhaps, exclude some who had acquired sufficient medical knowledge to enable them to successfully practice. How unjust to them, as well as dangerous to the community, is the admission into the profession of incompetent persons, for no other reason than that they are protected by letters patent in the shape of a diploma.

SUPPLEMENTAL REPORT ON MEDICAL EDUCATION.

BY J. BRADFORD COX, M. D.

When we see men ignorant of the first principles of anatomy, physiology, chemistry, therapeutics, pathology, etc., gaining a livelihood—yes, even obtaining a competency—by the "practice of medicine," we may well ask the question: What is the necessity for any medical education?

If empiricism and mystery are enough, why wade through years of study and research to gain a knowledge of how and when to administer a remedy? If by accident we learn that a substance taken into the stomach purges, or produces emesis, why investigate as to the reason for such a result? The simple fact that such is the result is all the knowledge that many of our patients care to have on the subject, and all that some of them deem necessary on the part of their physician. Even this much knowledge is not thought necessary by many intelligent persons, for they are willing to risk all to the mystery of infinitesimals and the dynamics of vitality. If it be true that the age of mystery is giving way to one of exact knowledge; if the truths of science, the laws by which nature works, are superseding that supposed knowledge which is the result of isolated experiment, conjecture, and theory; then will an answer to my question be apparent. Assuming that this is the case, and that we are advancing in a knowledge of medicine and all that pertains to it, I will offer a few thoughts on the subject assigned the committee of which I have the honor of being a member.

I wish to consider the subject from my own standpoint, and will not expect the other members of the committee to concur in what I may say, unless it meets with their ap-

proval. The subject, in its broadest sense, will include all acquired knowledge of medicine from whatever source it may come. I do not propose to lead you back to classic times, to consider the origin, progress, etc., of medical schools, although this would be pleasant, but desire to view the subject from a more practical standpoint. For this purpose I will consider—

First—Preparatory or collegiate education.

Second—Preliminary medical education.

Third—Practical medical education.

In the first division of the subject I include a thorough preparatory education before entering upon the study of the collateral branches of medicine. In the second, the study of these latter up to the time of graduation in medicine. In the third may be included all the knowledge gained after commencing practice. This latter may be obtained from two principal sources, viz: personal experience, and from consulting the views of others, either orally or by means of books, journals, etc. I call this latter, practical education, because many physicians never seek knowledge from these sources, unless it be for immediate practical use.

As to the first two divisions of the subject, preparatory and preliminary medical education, there is a great variety of opinion concerning the amount of knowledge necessary to entitle a student to enter and graduate at a medical school. That some attainment in general education should be required of every student before commencing his medical education, all will admit. How much should be required is not well settled, students being permitted to enter some medical colleges, especially in the United States, without even a common school education. But in such cases the act is condemned by the profession, and the tendency is perhaps towards requiring of each matriculate evidence of academical knowledge.

The "General Council of Medical Education and Registration" in England, which held a meeting during the present year, was of opinion that, unless a youth has acquired a fair amount of general knowledge, precision of thought,

and habits of industry, at the period of commencing professional education, it is doubtful whether he will ever do so. The following resolution created an animated discussion, but was finally passed by a majority of nine to seven—seven members not voting:

Resolved, That it is not desirable that any university of the United Kingdom should confer any degree in medicine or surgery, whether that of Bachelor, Doctor, or Master, upon candidates who have not graduated in arts, or passed all the examinations required for a Bachelorship in Arts, or passed, after a due course of education, such as are *bona fide* academically equivalent to those required for a degree in arts.

Since the function of this General Council seems to have been only advisory, and since the English Government is slow to act, and for other reasons, we cannot expect to see immediate results from this recommendation, unless we, on this side of the Atlantic, take up the subject in our usual practical way, and profit by what the leading medical institutions of Great Britain have suggested.

That it would be to the best interests of the profession in the United States for all medical colleges to require of each student evidence of a certain specified preparatory education before matriculation, no one will deny. But can this be done—and how? are questions which must be first settled. It can be done when public opinion has reached that point which enables it to say, "it must be done." This point has, perhaps, not yet been reached, and the question as to how, resolves itself into one of elevating public sentiment, both among the laity and the profession, to the required standard. This can be done in various ways. Each individual member of the profession can do much to hasten the event. Lest I should seem arrogant in attempting to say how you may do this, I will only call your attention to the action of the American Medical Association on the subject, to the effect that no practitioner should act as preceptor to any medical student who has not acquired an education equivalent to a degree in arts. In addition to this, I will

venture to say that those colleges which require a preparatory examination, or evidence of academic knowledge, should be encouraged by advising students to matriculate there in preference to any other college.

That these views are unpopular with some, I am well aware; but that they are popular with a majority of the profession, cannot be doubted. Such a reform would not necessarily diminish the supply of medical students to the various colleges. It would only be the means of selecting the students from better material—from a class better educated. The law of supply and demand would still govern as to numbers or quantity, while the quality would be much improved. I invariably refuse to act as preceptor to any student who fails to fill this standard.

This brings me to the second division of my subject, or preliminary medical education. A committee appointed by the General Council of Medical Education and Registration, to which I have already alluded, sent circular letters containing questions respecting the results of professional examination and deficiencies in preliminary education, to the various licensing bodies. The answers received were voluminous. They emanated from the Universities of Oxford, Cambridge, Edinburgh, Glasgow, and Aberdeen; from the Colleges of Physicians of London, of Edinburgh, and of Ireland; from the Apothecaries' Society of London, and Apothecaries' Hall of Ireland; also, recommendations from the Conference of the Representatives of the Colleges of Physicians and Surgeons of Edinburgh, and the Faculty of Physicians and Surgeons of Glasgow. Surely, answers and recommendations from such bodies, made with deliberation and a view to elevate the standard of the profession, are entitled to great weight, and if properly compared and analyzed, would add much to the elucidation of the subject of medical education. The committee which addressed the circular letters to the licensing bodies, in their report suggest that the efforts of the Council must be directed, not to lower the standard of the examinations, but to raise the standard of education of the candidates. The committee

further states that the attainments of the candidates have increased during the last ten or fifteen years.

Several of the licensing bodies express the opinion that the period—four years—of professional study, is insufficient. The College of Surgeons of England is not prepared to say that students of average intelligence and fair industry cannot, within the time now generally allowed, qualify themselves to pass their examinations. The College of Physicians of Edinburgh would not be prepared to make the extension of the period of study obligatory. The College of Surgeons of Ireland regards the four years to be amply sufficient. The University of Aberdeen, College of Physicians of Ireland, and Apothecaries' Hall of Ireland, think the time allowed would be sufficient, if the full period of four years were well employed.

Thus we have the views of the leading medical institutions of England condensed. Could they have expressed their views as to our "two full courses of lectures," etc., it is evident that the decision would not have been flattering to American colleges.

After several days deliberation, this Medical Council arrived at the following conclusions concerning graduation, and the qualifications necessary to entitle a practitioner to the benefits of registration, viz:

First—That it is desirable that the different licensing bodies, whether singly or in combination, should frame their examinations so as to secure that the knowledge of every practitioner whose name appears on the register shall have been tested in all the subjects of professional education which the Council has determined to be essential, viz: 1. Chemistry, including Chemical Physics (meaning thereby heat, light, and electricity.) 2. Anatomy. 3. Physiology. 4. Materia Medica and Pharmacy. 5. Pathology, including Morbid Anatomy. 6. Medicine, with Medical Anatomy, Clinical Medicine, and Therapeutics. 7. Surgery, with Surgical Anatomy and Clinical Surgery. 8. Midwifery. 9. Forensic Medicine.

Second—That there be in future three professional examinations.

Third—That the professional examinations be arranged in two divisions. The first division may be completed at or before the close of the second year of professional study, but the second division not till the expiration of two years after the passing of the first division, nor before the completion of the fourth year of study; that the examinations and the subjects included in each be such and in such order as to insure as far as possible a due continuity of study; that the first division of the examination shall include the following subjects: 1. Chemistry and Chemical Physics. 2. Anatomy. 3. Physiology. 4. Materia Medica and Pharmacy. That the second division shall include the following subjects: 1. Pathology, including Morbid Anatomy. 2. Medicine, including Medical Anatomy, Clinical Medicine, and Therapeutics. 3. Surgery, including Surgical Anatomy and Clinical Surgery. 4. Midwifery. 5. Forensic Medicine.

Fourth—That it is desirable that an examination in the earlier subjects of professional study should take place before the end of the first year of professional study.

Fifth—That the professional examinations be conducted both in writing and orally, and that they be practical in all in which they admit of being so.

Sixth—That not less than two examiners shall take part in every oral and clinical examination.

Seventh—That the questions to be answered in writing should be submitted to the whole body of examiners for consideration, and if desirable, revision, before being proposed to the candidates.

Eighth—That the written answers should be submitted to more than one of the examiners.

Ninth—That excellence in one or more subjects should not be allowed to compensate for failure in others.

The following recommendation was adopted without discussion, viz:

Resolved, That it be recommended that in no case should the examination of a candidate by any of the licensing bodies, in any subject, be conducted wholly by the lecturer or teacher in that subject in the school in which the candidate has been educated.

I have quoted thus largely from the proceedings of this Council, for the purpose of comparing requirements in England with our own. Although the machinery of government is different in the two countries, the objects to be attained are the same, viz: the welfare and happiness of the people.

The Romans believed in the right of the State to supervise the physical development of their youth as well as the intellectual culture of the same. The English seem inclined to profit by this principle, at least so far as the soldiery of the government is concerned. Very few of the many educated medical gentlemen, subjects of the queen, are deemed competent to have charge of the physical condition of those who are called upon to defend the government in the struggles of the battle-field. Graduates in medicine and surgery, after their four years course in the universities, enter the Medical School for the Army, Navy, and Indian Service, as students, and are instructed in Military Medicine, Surgery, Hygiene, and Pathology, before being permitted to assume the responsibilities of the special duties afterward to rest upon them.

If Great Britain has acted wisely in caring for her soldiers, is not the example worth something to other nations? Has not every family the right to demand that its medical adviser shall attain to something near the standard required by the English Government? Is not the preservation of the family's health of as great importance as that of the soldiery?

No educated practitioner of medicine and surgery in the United States will deny the assertion that the physical ailments of the great mass of our population are but poorly and imperfectly cared for. In the sparsely settled districts and in villages and smaller towns, it is almost impossible to

procure intelligent medical and surgical assistance when it is most needed. To meet this demand, let the entire profession unite in sustaining those colleges only which are working for reform in this direction by extending the time of preparation to three or four years of lectures, and which have lengthened their courses of lectures.

One cause of most of the so-called reforms—*i. e.*, where a practitioner takes up with any of the one-idea would-be systems of practice—is that their original medical education was superficial, and a failure was the result, and in order to make a livelihood they have cried reform, and embraced an idea still more superficial than their partial education, because it required less study and exertion.

The more studious of those who originally start in to master any of the pathies or isms, if energetic, soon go beyond their narrow confines which some delight to call a system, and embrace rational and scientific medicine. Hence the tumult which some of the followers of a pathy are creating at present in New York and London, a Dr. Wyld being the leader in the latter place.

This brings me to the last division of my subject, or practical medical education. The practitioner who concludes that because he has graduated in medicine there is nothing more to learn, is indeed to be pitied. Failure is written across every such case. As before intimated, the knowledge acquired from consulting the views of others, either orally or written, and that which we gather from personal observation, is or should be more highly prized than mere theoretical knowledge, such as is usually obtained in the colleges, and especially such as is obtained from colleges which seem to view the subject of medical education from the standpoint of dollars and cents, losing sight of the dignity of the profession.

Some practitioners depend entirely upon such knowledge. They gain no practical knowledge. They stop study on leaving college. They seldom consult the views of others on the cases they may be called to treat. In other words, graduation is the climax of their lives personally. They

enter upon the down grade from that time. They shut out all light that shines on them from actual practice. They look only on the surface of cases falling under their care. It is only by going to the bottom of every case, seeing what it is, discovering its pathology, if not able to see it ourselves, asking others, in one of the ways indicated, that we can progress. Many of the failures in our profession result from a want of proper appreciation of this latter kind of knowledge.

As a means of promoting practical medical education, medical literature should be encouraged. Books and journals should be more plentiful, and at such prices that every practitioner could be well supplied. Local societies should be organized in every town where half a dozen or even a less number of physicians could be brought together. A friendly, congenial, and fraternal feeling should exist between members of the profession everywhere.

REPORT ON PUBLIC HYGIENE AND STATE MEDICINE.

BY F. W. HATCH, M. D.,
CHAIRMAN OF THE COMMITTEE ON PUBLIC HYGIENE AND STATE MEDICINE.

MR. PRESIDENT, AND GENTLEMEN OF THE STATE MEDICAL SOCIETY: Complaint was made by my predecessor, the Chairman of this committee for the last year, of having been deserted by his associates, and compelled to make up a report out of the resources within his own command. I find myself, Mr. President, in the same position; about to assume the grave responsibility of speaking of the sanitary condition and considering the sanitary interests of the State. My associates, when they contemplate the failure which may possibly attend my efforts, may at least enjoy the satisfaction of exclaiming, with Macbeth, "Thou canst not say I did it."

One of the first subjects that presents itself, upon reviewing the sanitary condition of the State during the past year, is that of epidemic disease; and we have cause for congratulation that the epidemic of smallpox, which for more than twelve months prior to our last session had raged with fatal virulence in the metropolis of the State, and later in at least one other locality, has now ceased its visitation. And this congratulation is all the more encouraging since we recognize in the fact a renewed evidence of the triumph of sanitary precautions faithfully and diligently enforced, and the efficacy of vaccination well performed. That smallpox, then so prevalent in the great center of population and trade, was stayed in its progress and confined to so few localities, can only be ascribed to the prompt and efficient adoption of measures for its limitation.

The only epidemic of serious consequence, of which the past year has been the witness, is diphtheria. This disease, commencing almost simultaneously with the smallpox nearly two years ago, has spread over a much greater area of the

State than any other epidemic disease, since its settlement by its present inhabitants. It has not confined its ravages to the large cities, the centers of commerce, and where especially the specific as well as common causes of zymotic diseases are supposed to abound, but has reached to the smaller towns and villages, the little settlements of the country, and even, in some striking instances, brought dismay and sorrow into dwellings so isolated in respect of masses of population, so free from prominent or even apparent insanitary surroundings, as to have been imagined exempt from the danger of its visitation.

The question of causation, therefore, its mode of origin, and the means by which it has been so widely and in some respects so strangely disseminated, is one of great interest, to which it is proposed presently to devote a portion of this paper.

Of the other serious epidemic (zymotic) diseases, scarlatina has been the only one prevailing to any extent, and this only in a few localities. It cannot be said to have been really epidemic in more than three or four sections of the State—at Downieville, from January to June 30th, 1877; in and about Yreka, Siskiyou County, and in Shasta County, towards the close of the year 1877 and extending on to January, 1878; in Colusa County about the same time.

In the last mentioned locality it appears to have been generally mild, though some cases are reported as having been attended by grave symptoms. In Shasta and Siskiyou the accounts which have reached us represent it as having been extensively prevalent, and with a moderate fatality. Twelve deaths were reported by Dr. J. B. Robertson, of Yreka, in January, 1878, out of sixty-six cases; four deaths by Dr. C. M. Hill, of Ætna Mills, in the same county, out of thirty cases. No theory is advanced as to the origin of the disease in any of the above localities.

Considering the entire class of what are usually regarded as zymotic diseases, we find the mortality in eighteen localities to have been 2,216, as represented in the following table. In it are embraced most of the largest cities and towns in the State:

TABLE OF MORTALITY BY ZYMOTIC DISEASES IN EIGHTEEN LOCALITIES, 1877.

DISEASES.	San Francisco	Sacramento	Stockton	Petaluma	Marysville	Placerville	Los Angeles	Watsonville	Santa Cruz	Folsom	Santa Barbara	Downieville	Antioch	Cloverdale	Ventura County	San Mateo County	Winters	San José	Under five years of age	
Cholera morbus	10	0	1	0	0	0	0	0	0	0	0	0	1	0	0	2	0	0	1105	San Francisco.
Cholera infantum	122	12	3	1	0	0	2	0	0	0	0	2	1	0	4	7	0	0	55	Sacramento.
Diarrhea	28	0	1	1	1	0	2	1	0	0	1	0	0	0	0	1	0	0	15	Stockton.
Dysentery	9	1	2	1	1	0	13	0	1	0	0	0	1	0	1	0	0	0	17	Petaluma.
Smallpox	140	0	0	0	0	0	0	96	0	0	0	0	0	0	0	0	0	0	23	Marysville.
Measles	14	0	1	0	5	0	1	0	0	0	0	0	0	0	0	0	0	0	13	Placerville.
Scarlatina	25	0	2	0	0	1	6	0	0	0	0	3	1	0	0	0	0	0	101	Los Angeles.
Diphtheria	794	86	13	22	0	26	50	12	82	4	20	0	5	19	27	11	0	30	8	Watsonville.
Croup	91	4	3	3	1	0	1	0	1	0	0	0	0	0	1	2	0	3	16	Santa Cruz, 11 mos
Whooping cough	26	9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	Folsom.
Erysipelas	16	2	0	1	2	0	0	0	0	0	0	0	0	0	0	0	1	0	9	Santa Barbara.
Fever — typhoid and typho-malarial	196	9	7	4	3	3	22	7	5	0	0	1	3	2	4	2	3	7	5 4 7	Antioch. Downieville. Cloverdale.
Fever—malarial	22	4	1	0	8	0	8	0	0	2	0	0	0	0	0	0	0	0	21	San José, 5 mos.
Fever—cer-spinal	28	8	0	0	0	0	1	0	1	0	0	0	1	0	4	0	0	0	20	Ventura County.
Alcoholism	28	3	2	1	5	0	4	0	1	2	0	0	5	0	0	2	0	0	17	San Mateo County.
																			1	Winters.
Totals	1549	88	36	34	26	30	206	20	41	8	21	6	18	21	41	27	4	40	1408	
Deaths in each 1000 of popl'n (est'd)	5.1	3.6	2.7	5.6	5.7	6.0	12.8	6.6	8.2	5.3	3.8	5.0	13.0	7.0	17.0	9.0	5.0	.....		

Thus we find that in San Francisco there died during the year 1877, 1,549 persons, of the zymotic diseases alone; of these 1,105 were under five years of age, or 5-16 in each 1,000 of population, estimating the latter at 300,000. In Sacramento 88 deaths, and 55 under five years of age, 3.66 in each 1,000. In Los Angeles, 206 deaths, and 101 under five years, 12.8 in each 1,000.

Without extending the review more minutely, we are confronted with the fact of an aggregate of 2,216 deaths by what in the present day we are accustomed to regard as preventable diseases; 5.4 in each 1,000 of the population represented; 1,408 infants under five years of age, a large proportion of whom were sacrificed to neglect—victims to conditions which, according to the almost universal testimony of the profession, are within our control. Of these 2,216 lives, diphtheria claimed 1,101; cholera infantum, 154; typhoid and typho-malarial fever, 283; alcoholism, 53; smallpox, 236—1,827 deaths from these five causes alone, whose intimate connection with insanitary conditions, with dampness, with filth in one or another form, with imperfect drainage, with foul sewage and its gasses, with a disregard of sanitary laws, few at the present day will deny.

It is proper, Mr. President, that these and similar facts should occasionally be brought to the notice of the profession; that we should, at least once a year, be confronted with the work of death in our midst. Scattered over different sections of the State, isolated to a great extent one from another, we have ordinarily no means of knowing what is going on beyond our own limited circle. Perhaps the recital of the few facts just alluded to may awaken reflections not only profitable to ourselves, but resulting in benefit to those dependent upon us as the guardians of health.

Of the causes of mortality to which reference is made, diphtheria stands prominent above all others—in fact exceeding all others combined—1,101 deaths out of a total of 2,216; and yet there are few facts in medicine which the investigations of modern authorities have more fully deter-

mined than that of the dependence of this disease upon causes which, under a proper sanitary system, might to a very great extent be avoided. If to the above we add the deaths by croup, which, occurring in localities where diphtheria was at the time prevalent, were probably of a diphtheritic character, 110 in number, we have a total of 1,211 deaths by diphtheria out of 1,549 by all zymotic causes, or 78 per cent.

Smallpox is reported from only two localities—San Francisco and Los Angeles. In the former it ceased in July, in the latter, in June. Peculiar circumstances seem to have favored the dissemination of the disease in each of these localities. In the one—San Francisco—the Chinese population; in the other, the native Spanish or half-breed population. In Los Angeles it was almost, yet not entirely, confined to this class, and their habits and mode of living favored its propagation among them. It was generally fatal, yet they almost universally declined the proffered services of the Health Officer, and obstinately refused to submit to vaccination. There is a strange idea existing among them, that it is fatal to be vaccinated during the prevalence of an epidemic of smallpox, though at other times they are both willing and anxious to avail themselves of the protection it affords.

Of the 96 deaths by variola in Los Angeles during the year, 66 are reported as being "natives."

From the exanthematous and other common diseases the mortality has been quite insignificant. Measles claimed only 21 victims; scarlatina, 36; whooping-cough, 35; a total of 92. Typhoid and typho-malarial fevers are responsible for 278, and cerebro-spinal fever for 43, while as a sad commentary upon the habits of our population, alcoholism is set down for 53, only three less than scarlatina and measles combined.

In the diarrhœal diseases the mortality record exhibits a gratifying decrease. The deaths by cholera infantum are

given at 155, in the 18 localities; in 1876 they amounted in the same towns and cities to 188.

While these statistical facts possess a deep interest in relation to the diseases and mortality of the past year, the question of etiology is of paramount importance in a practical and hygienic point of view. This is especially true of diphtheria. To discover the causes of disease, is indeed at all times one of the most interesting problems in medicine, but especially so of those diseases which, usually classified under the general head of zymotic affections, are regarded as being more or less preventable.

It is unfortunate that there should be any difference of opinion as to the propriety of this classification; that some should still entertain the belief that the deposit upon the mucous membrane, which we are accustomed to regard as the characteristic sign of diphtheria, is anything more than the expression of a local inflammation, rather than of a specific constitutional disorder; that there should be any doubt as to a certain more or less intimate dependence upon unsanitary conditions; that we should still hear expressions of incredulity as to its contagious or infectious character, notwithstanding the mass of evidence which has accumulated to sustain it.

The principles of medicine are in some respects unlike those upon which we rely for evidence in other sciences. Many of the doctrines in which we firmly believe are not yet susceptible of that clear demonstration which is applicable to other subjects. Yet even in medicine there are many things which carry conviction to the mind, even though the proof by which this conviction is sustained be not mathematically exact.

These general principles apply forcibly to diphtheria or to the position which this formidable malady occupies in medical belief. The specific character of diphtheria, its constitutional nature, the subordination or dependence of the local deposit upon an antecedent or concurrent systemic poisoning, are doctrines, for example, the validity of which, though the latter position is controverted by high author-

ity, is admitted by the great mass of the profession of the present day. Yet what is the evidence upon which this belief is predicated?

In the clinical history of diphtheria we recognize the almost constant association of constitutional symptoms with those that are local, sometimes simultaneously, but usually preceding the latter by a greater or less interval. The child is restless or drowsy, more or less feverish, perhaps, or in the absence of the latter, exhibits a degree of debility amounting at times to prostration quite disproportionate to the other symptoms of the disease, or to the local exudation when it appears. It is true that this local exudation in some cases apparently precedes the development of the constitutional affection, but this may be apparent only. Certainly, in the large majority of cases, the history affords evidence of some general disturbance prior to the discovery of the local deposit. On the other hand, we doubtless find many cases occurring during an epidemic of diphtheria, in which there are all the constitutional symptoms, the profound debility, and even the consecutive paralysis, without any true diphtheritic exudation having been observed. These cases are analagous to what is sometimes seen during an epidemic of scarlatina, the *S. sine eruptione.* How often do we see diphtheria attack one or more members of a household in its most characteristic form, while others of the same family are simultaneously or successively sick, weak, prostrated, with redness of the pharyngeal region, but without any true exudation? Is there any greater reason for doubting the identity of these cases, than that of the anomalous cases of scarlatina just alluded to?

The discovery of albuminuria will add yet stronger evidence in favor of the constitutional character of diphtheria, and the yet further fact that, although we may remove or utterly destroy the exudation in its original seat, we often fail to cure the disease—to remove the constitutional infection. Some of its habits serve besides to give force to the idea of the constitutional nature of diphtheria; as, for instance, its implication of different parts of the body even

in the same case—the throat—the abraded skin—the vagina.

We may know it by the company it keeps, its association with other epidemic diseases—with typhoid fever, scarlatina, and measles. It is true that Oertel has ably argued in favor of the local origin of diphtheria, believing that the fungus or micrococcus which is its germ, is arrested in the fauces, and there produces effects at first local, but which afterwards become systemic. Dr. Geo. Johnson ("London Lancet," 1876), entertained similar views as to its local character, comparing the effect of the poison of the disease upon the mucous membrane, with that of the application of cantharides upon the skin. Yet in addition to the objections already urged against this theory, there may be added the rapidity with which death ensues in many cases—twelve, twenty-four, thirty-six hours—with little or no membranous exudation; the early toxæmia observed in some cases; the absence of any valid reason why the mucous membrane of the fauces should alone be affected, and not other mucous surfaces possessing a similar histological character; its epidemic character; and, as we hope to be able to show, its contagious and infectious nature.

The specificity of diphtheria is sustained by microscopical investigations—by the detection of certain fungi peculiar to this disease. Thus, Nassiloff, referred to by Wagner (Pathology, p. 267), has constantly detected fungi "in diphtheritic membranes, and on the borders of the changed parts in the epithelium, even where no membrane has yet been formed; they penetrate deeply into the tissues following the passages of the juices and lymphatics." He found on the nose and throat of a diphtheritic person "brown masses consisting of fungi. Here and there, especially in the mucous and sub-mucous tissue of the larynx in another case, the plasmatic canals of the connective tissue as well as the lymphatics, were filled with fungi." He and others have successfully inoculated the disease into rabbits; and the pages of medicine afford melancholy examples of the same process having been successfully but accidentally accom-

plished in the persons of some of the most distinguished observers, as the sad fruit of professional devotion.

Nassiloff, as the result of his investigations, considers the development of the fungus to be primary in the disease, and the cause of the necrosis. Buhl recognized the existence of a general infectious disease entirely independent of any local affection; he saw in it only the evidence of a general infection, manifesting itself upon the tonsils, uvula, etc.

Oertel discovered in the diphtheritic membranes, the subjacent diseased parts, and even the blood, great numbers of vegetable organisms, to which he gave the name of "micrococci." He thinks, as just now stated, "that it begins as a local disease, and develops afterwards into a general one; and that, moreover, the general infection is kept up by the local one. The disease establishes itself first in one spot, the focus of infection, and thence radiates, as it were, through the body, until by general blood poisoning it renders the organism incapable of life." Speaking of inoculation, he says: "The mass of micrococci developing in the body of the animal forms the criterion for the severity of the disease, and an exact indication of the virulence of the diphtheritic contagion." (Zirmssen, Vol. I, p. 590.)

Bretonneau, in 1821, in his early comments upon diphtheria, described it as a local disease, communicated by contagion, through inoculation, or by contact of the diphtheritic secretion with the mucous membrane, and not through the atmosphere. Subsequently, after more extended observations, he avowed his belief in a general infection—that blood poisoning was one of its essential conditions. However this may be, whether the disease is primarily constitutional, or only secondarily so, through absorption of a local infection, the specific nature of the disease and its cause is equally established.

The same facts bear directly upon the question of the contagiousness of diphtheria. It has been admitted by almost all authorities to be specific. It has, as we have seen, been inoculated; it is capable of being developed in

an individual by the accidental contact of the exudation upon the mucous membrane, as shown in the unfortunate results just alluded to—the cases of Webber, Blache, Valleix, and others. The important practical question is, as to its communicability by other ordinary means. We may derive some basis for the determination of this question from the similarity of its habits, some of which were previously alluded to, with those known of other diseases generally recognized as being contagious. One of these, belonging to diphtheria, is that of occurring epidemically or endemically; the varying intensity of different cases is another; its common coincidence or association with other members of the class; its propagation in succession to several members of a household; its spread among the children of a school, one after another being attacked.

Many striking facts have been recorded bearing upon this question, and others equally so have been the subjects of personal observation. Wertheimber, related by Oertel, records "a case of a person sick with diphtheria, who, living at the time of attack away from home, returned to his family, in which, until then, no disease of that nature had occurred; several days after his arrival another member of the same family was attacked with the disease." Oertel himself relates a case in which "four members of a family fell sick in a few days after the return of a son from collège. He was sick with diphtheria at the time, and communicated the disease by kissing." The case of a child visiting the town of Dixon, in this State, having just recovered from the disease, but wearing the clothes which were worn during its sickness, and becoming the source of contagion to a family among whom there had not only been no diphtheria up to this time, but none even in the town or its vicinity, is a case in point. Another instance occurring under my own observation, is that of a child sick with diphtheria, whose two sisters, returning home from a healthy locality in the mountains, where no diphtheria had at any time prevailed, were both attacked with the disease a few days after their arrival.

In the report of the Health Officer of the City of Cleveland, Ohio, the case is mentioned of a child ten years of age who was removed from home upon the outbreak of diphtheria, from which three children had died. "Two other sisters, convalescent from the disease, went to the seashore—one, five weeks from the commencement of her illness, and the other only three weeks, but from whom all traces of deposit had disappeared. They left together, and seemed equally well. They were joined by other members of the family, and in a week by the child of ten above mentioned. Early in the following week symptoms of the disease showed themselves in her, and proved fatal."

The weight of recent authority is decidedly in favor of the contagiousness of the disease. Dr. J. L. Smith regards it as being "highly contagious through the breath or by personal contact," being communicated by children upon the streets or in schools.

According to Oertel, "diphtheria, when it has once gained a foothold, becomes widely diffused by contagion. The contagion of diphtheria may be carried through the air or by solid matters to which it has attached itself. It is therefore diffused by the exhalations of the patient, by the air surrounding him, as well as by contact of several objects with the products of the disease." The same author alludes to the peculiar tenacity with which the contagion clings to certain objects, as houses or rooms, the disease being capable of reproduction there after the lapse of months.

Bristowe, one of the latest authorities, defines it as a "contagious disease." In another place he says: "Diphtheria is undoubtedly contagious. The epidemic of 1859–62 was distinctly imported into this country (England) from France. The introduction of a case into a house, or hospital, or other institution containing many inmates, is almost certain to be followed by an outbreak of the disease amongst them; and, indeed, it not unfrequently happens that in this way every child of a large household is swept away." The contagion, he thinks, is for the most part carried by the

atmosphere, but that it may also lie dormant in fomites, being communicated by rooms which had contained cases of the disease weeks or months previously. "It may be presumed," he adds, "that the patient is most apt to impart the disease while the membranous exudations are present, but it is by no means certain at what period he ceases to be infectious. Convalescent children—children, that is, who appear to be perfectly well, and have been apparently well for two or three weeks—seem occasionally to have given the disease to others." He has no doubt of the inoculability of the disease.

Roberts likewise strongly indorses the theory of contagion. "The ordinary exciting cause of it," he says, "is a *specific poison*, and the disease is highly infectious and contagious." The contagion, he thinks, is not confined to the exudation, but "unquestionably exists in the breath, and probably in other exhalations and secretions. * * * * After convalescence, a patient may infect another individual for an uncertain time. * * * * The poison clings tenaciously to houses and rooms for a considerable period."

The views expressed above as to the contagious and infectious character of diphtheria, are not such as have been formed in the closet and promulgated as theories. They have been derived generally from observation and experience. The evidence in favor of the doctrine of contagion is of the same nature as that upon which we are accustomed to rely in support of the contagiousness of scarlatina—too strong, certainly, to be lightly regarded, and the instances of its communication from one member of a family to others, or from one person to another, too numerous to be justly attributed to common causes, as of locality and surroundings, affecting all alike. Yet, while it is believed that the contagiousness of diphtheria is well substantiated, it must be admitted that the mode of its transmission remains in doubt, and that the susceptibility manifested to its reception is less than that observed in scarlatina, measles, or smallpox.

It only remains for us to consider the question, whether

the history of the disease warrants the belief of its dependence in any degree upon insanitary surroundings? Probably no feature connected with diphtheria is more obscure than this. The disease itself seems to be by no means uniform in its associations. We see it to-day invading the abodes of the poor, and drawing sustenance from accumulations of filth, from atmospheres contaminated by organic effluvia; and to-morrow we are called upon to witness the desolation it has caused in localities where every sanitary regulation is observed, and surrounded by every safeguard which wealth and refinement can supply. It is not surprising, therefore, that the sentiment of the profession should be divided as to the relation of the disease to the ordinary insanitary conditions—such, for example, as sewer gas, tainted drinking water, soil dampness, and the like; and it must be confessed that further facts are needed before the question can be considered settled. It by no means follows, because diphtheria sometimes invades the palaces of the rich, that it is never occasioned by the conditions just enumerated. Sewer gas, for instance, is quite as likely to enter the houses of the rich as the more humble dwellings of the poor. It is an element in the causation of disease, often difficult to detect, frequently inodorous, and dependent upon faults of sewer construction and sewer connection with dwellings, which there is abundant evidence to know, not infrequently escapes all but the most skilled observation, and against which the only security we have is in the honesty and integrity of the artisan.

Perhaps it is too much to say, in the present state of our knowledge of this disease, that it ever does arise directly *de novo* from defects of sewerage. That such defects do lower the vitality and become the predisposing cause of this and other zymotic affections, and therefore render the system of an individual more than usually susceptible to an attack—place it in a condition favorable to its development—there is abundant reason to believe. The same may be said

of other kinds of filth—of foul privies, of dampness. But even with this limitation, the relation of diphtheria to the conditions now under consideration, becomes one of vast importance. This is especially so when we consider that this disease is most prone to select its victims among the young—children under ten years of age—that age, in fact, which is well known to be peculiarly susceptible to hygienic or anti-hygienic influences. Of the zymotic infectious diseases generally, it may be said that they abound amid the abodes and avenues of filth and wretchedness; and there are many isolated facts which tend to show, notwithstanding the occasional outbreak of diphtheria under better, cleaner, and more exemplary conditions of locality, that it, quite as much as, or even more than, any other member of the class, seeks by preference places situated upon damp, undrained ground, underground dwellings, the overcrowded tenements of the poor, and wherever impure air prevails. It is in such places that diphtheria generally begins and commits its most fearful ravages. It is amid such surroundings and associations that its greatest fatality is witnessed. That it should spread to others is not to be wondered at when we consider its contagious and infectious character. Indeed, in the case of diseases of this class, it is sometimes difficult to draw the line between cases propagated by the principle of contagion, and those whose origin is in other supposed efficient causes.

In the Report of the Medical Society of the State of Pennsylvania, Vol. XI, Part II, 1877, an instance is related by Dr. L. M. Thompson, showing the apparent dependence of diphtheria upon damp dwellings and the neglect of subsoil drainage. "During several months," he says, speaking of its ravages at Mahoney City, "of the fall and early winter, it was rare that a case occurred outside of two blocks of buildings at the upper and east end of Center street. There was nothing obviously different in the habits and mode of living of the residents of the afflicted spot, from their neighbors, which should confine the disease to, or account for its persistence in, so limited a space. * * *

Inquiries were instituted in regard to drainage of the basements and cellars of the houses in the afflicted locality. It was proved that every basement was occupied by one or more families; it was also ascertained that under the floors of the basements there was more or less water. * * * No attempt had been made at drainage artificially, notwithstanding the fact that at the rear end of these lots a stream passed, into which, with little expense, every drop of water could have been carried, and these basements have thus been rendered comparatively healthy. * * * In the opinion that dampness was the cause of the prevalence of the pestilence of diphtheria in this one limited locality, for several months, during which time it was scarcely known in other parts of the town, I was sustained by other physicians whose attention was called to the facts."

The Report of Dr. F. Nickerson, upon the health of Lowell, to the Massachusetts State Board of Health, 1875, is strongly corroborative of the idea above advanced as to the effect of dampness, as a cause of diphtheria, especially when associated with the other factors of foul vaults, defective drains, open and overflowing cesspools, and water tainted with sewage—to which should be added, contagion. The facts are interesting:

"The first cases of diphtheria," the Doctor says, "which were brought to my notice this year, occurred in the last of September, and in October, on Fayette street, near the corner of Chestnut street. Here, in a house on the moist, rich, sloping bank of the Concord, live two families who have no association with each other. Family No. 1 occupies the ground floor on the street. In this family were two cases, one of which proved fatal, October third. The odor from the vault is powerful, and peculiarly nauseating. Behind the house is a damp garden, which is sometimes overflowed by defective drains from neighboring dwellings. In the basement, farther down the slope, in a still damper situation, lives family No. 2, in which were three cases and one death, September twentieth. Under the sitting-room is an unventilated and unlighted cellar, four feet deep, where

hens had been kept; a drain passes under the floor of the main sleeping-room. The smell of the vault which adjoins the room in which the deceased child lay sick, was so strong at that time that the Doctor ordered the removal of the patient to another part of the house. Both these families use well water. Farther down the slope, on the very edge of the river, reside an old man and his wife. The latter having attended the deceased child of family No. 2, was taken on the day after its death with symptoms of diphtheria. The overflown garden above mentioned adjoins this house. The vault is cleanly; city water is used. The sewage from these three tenements, as well as from those about to be noticed, passes first into a neighboring cesspool, and then into the river above its surface, where the odor is marked. On the opposite side of Fayette street is a house which was occupied but has been vacated by families A and B. In 1872, there emptied into an open cesspool two feet square, and situated in the cellar, ten sink pipes. The cesspool overflowed so that the cellar was constantly covered with sewage, the odor from which penetrated the house. Family A then consisted of five members, two of whom had typhoid fever, and one died. In family B, which numbered four, three had the same disease, and one died. After this the number of sink-pipes was reduced to two. Family A remained, and was recruited to its original number by the birth of a child. The drain in the cellar was still a very perceptible nuisance, and the vaults were at times very offensive. The father died of typhoid fever last June, and two children died of diphtheria last October. * * * Recently, in some courts a few rods below the locality which I have just been describing, there have been three or more deaths from diphtheria, and several persons are now sick with it. In a certain house there were three cases and one death. Here I found a dark alley, two feet wide, into which sewage was emptying, and passing through the interstices of a crumbling stone wall, into a damp, ill-ventilated, and dark cellar."

Without quoting further just now from this interesting

report, it may be briefly stated that it includes an analysis of forty-six cases with seventeen deaths. Among the causes, or combination of causes, which were prominent, defects of drainage included 24 cases; foul vaults, 8; dampness of location or of cellars, 26; probable water contamination, 10; filthy habits or surroundings, 13; probable contagion, 6, in five of which this factor was quite evident.

Even at the risk of wearying the patience of the society, I cannot refrain from adding another brief extract from the same report:

"In house No. 4, on Jewett street, in rather a low situation, lives a family who have had no association with the other families. The land on which the house stands is filled in with six inches of refuse from the city. The family in question occupy two rooms on the ground floor, viz: a sitting-room about thirteen feet square, and an adjoining bedroom about ten by nine. The ceilings of these rooms were completely covered with brown stains, which proceeded from a litter of pups kept by a filthy family above, so that the stench at times was very strong. The sink-pipe discharges its contents on the floor of the adjoining cellar. The sink gutter from the tenement overhead passes over the roof of the piazza, and opens over the sitting-room below, and deposits a strongly smelling water which has worn for itself a hollow three feet from the well. The white paint of the house in the vicinity of the gutter is blackened with the sulphurous emanations. The solid excrements of the dogs, etc., were thrown under the window of the sleeping-room. The well is fifteen feet from the sewage in the cellar, and is covered with boards, on which it was the custom of the upper family to clean spittoons, etc. * * * * The family had lived in the house but a few months before diphtheria appeared, and sickened four out of five persons, one of whom died November twelfth. The fifth was a babe of five months at the breast. Of four women who attended the deceased child through its sickness of five days, one who lives in house No. 5, on Jewett street, was taken with a slight sore throat on Tuesday, November

sixteenth. Another, who lives in house No. 6, on Jewett street, was taken sick, and two children followed; no deaths. A third woman, who lives half a mile distant, escaped, but her daughter was attacked on Monday, November fifteenth, with fever, sore throat, swollen tonsils, and white deposits on the latter. The fourth woman, who lives a mile distant, on a hill in a perfectly healthy locality, where there had been no cases of sore throat, was seized on Wednesday, November seventeenth, with diphtheria; a girl four years old, on Monday, November twenty-second; a boy of seventeen years, on Tuesday, the twenty-third; husband had sore throat on Sunday, the twenty-eighth, and also a sister, on December fifth."

The extracts from the report of Dr. Nickerson are particularly interesting as exemplifying the action of several of the supposed causes of diphtheria: 1st, houses built upon land *made* with refuse from the streets of the city; 2d, contaminated well water, as shown by the two separate analyses made by Professor Nichols, the result of one being the discovery of ammonia; "albuminoid" ammonia; organic matter a considerable proportion; chlorine, and a "large amount" of nitrates; 3d, sewage in cellars; 4th, filthy surroundings; and 5th, contagion.

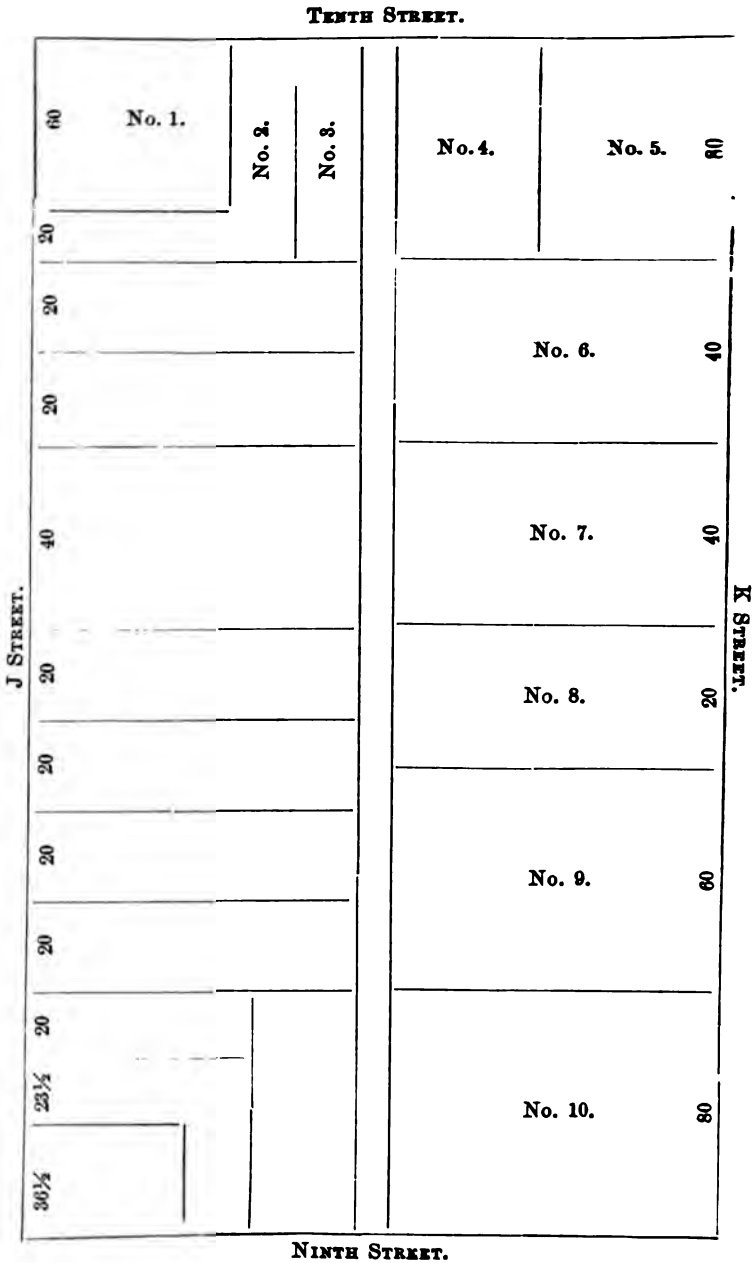
Dr. H. A. La Fetra, Secretary of the Board of Health of the City of Brooklyn, New York, summarizing the results obtained from an investigation of the causes of diphtheria in that city during the years 1875–6, states that—

"The experience of this Board in its treatment of the large number of cases of diphtheria that have occurred in this city during the last two years, has demonstrated to its entire satisfaction that diphtheria is propagated both by contagion and feculent surroundings; in the latter case more especially from the sewer-gases. A number of cases have been investigated—some of them referred to elsewhere—which had their origin in the miasmatic poison escaping from defective closets and broken soil-pipes, the surroundings and circumstances being such as to leave no room for doubt. There are other cases in which it is equally clear,

so far as a careful observation could determine, that the disease was the result of contagion, the patients not having been subject in their homes to any of the conditions in which zymotic diseases are generated." (Report Brooklyn Board of Health, 1875–6, p. 74.)

I apprehend that, but for the general belief in the theory of *specificity*, as applied to diphtheria, it would be readily admitted by unprejudiced persons, that the facts above related furnish strong circumstantial evidence in favor of the doctrine of the occasional origin of the disease in insanitary conditions. Indeed, Roberts, while subscribing to the general opinion of its exciting cause being a specific poison, adds that: "Some believe that there is a form of this disease not due to contagion, but produced by bad hygienic conditions, especially by drainage emanations."

Not dissimilar facts have been observed in the course of the epidemic of diphtheria in the City of Sacramento. One of these deserves to be referred to. It relates to the occurrence of the disease upon a single block or square, bounded by J and K and Ninth and Tenth streets. The particular localities of the disease may be better understood by reference to the diagram:


K STREET.
80
No. 5.
No. 4.
No. 3.
No. 2.
No. 1.
60
20
40
No. 6.
40
No. 7.
40
20
No. 8.
20
60
No. 9.
80
No. 10.
20
20
20
40
20
20
20
20
23½
36½
J STREET.
TENTH STREET.
NINTH STREET.

Upon No. 1 is a butcher's shop, with yard attached, where the occupants were said to have been in the habit of slaughtering calves, throwing the blood and other parts of the animals upon the ground. Chickens were also kept in this yard, and the premises were continually uncleanly. In the yard No. 3 was a cesspool, covered by slats, so as to permit the entrance of the slops and refuse from the house. The odor from this cesspool was complained of as being extremely offensive, especially in the evening. In two families living in No. 2 thirteen cases of diphtheria occurred, in No. 4 two cases, with two deaths; in No. 5 there were five cases and one death; in No. 7 five cases, and in the same house scarlatina prevailed immediately after. In No. 10 was a day school for young children, at which a number of children are known to have been taken sick with diphtheria, the teacher having been ultimately compelled to close the school.

This block seemed, in fact, to be for the time an infected spot, in which were concentrated and over which were diffused epidemic influences of a malignant character. Its location is in what has ordinarily been considered one of the healthiest portions of the city. Like other blocks, however, its drainage is imperfect. By the filling up of the streets a central basin has been formed, embracing a surface of about one thousand square feet, and five to six feet deep, walled in upon each side by rows of stores and dwelling houses. Deposits from house closets empty into vaults, those of outside privies into pits of varying depths; drains from kitchens terminate in some instances in cesspools, carrying off the refuse materials which accumulate, while in others these latter are allowed to run out upon the surface, to be absorbed into the earth or dried in the sun.

The location and condition of this block are in some respects not dissimilar to others in the city; but it is probable that the insanitary influences alluded to predisposed

the children resident there to the easy reception of a contagion of which the school was the focus.

Another fact tending to establish the influence of insanitary surroundings was observed in Sacramento during the recent prevalence of the disease—its frequent occurrence along the line of the sewer in the southern part of the city. This sewer, a wooden box, for a great portion of its extent either entirely uncovered with earth or only partially protected, in some places leaky, is intended to receive the sewage of the city and convey it to a point convenient for discharge into a drainage canal. It is placed inside the south levee along R street, and its locality is a favorite place of resort for the children in its vicinity, playing upon the sides of the levee, breathing the unwholesome and often offensive vapors which arise from the drain itself and the saturated soil around it, and wading in the water which accumulates in the rainy season, and remains there during the spring and early summer months. The frequent occurrence of diphtheria among the children residing along this and the adjoining streets has been observed by a number of the medical gentlemen of Sacramento, and the fact was deemed worthy of being mentioned in a discussion upon this subject before the "Sacramento Society for Medical Improvement."

Yet another fact which observation has demonstrated, is the far greater frequency of the disease in damp localities, where the soil is saturated with the water and suds thrown from the kitchen, in the lower portion of the city, where the ground is humid, in brick houses resting upon a damp foundation, and plastered directly upon the walls, as is the case with most of the brick structures built at an early day. The walls of these houses, saturated with moisture during the winter, are never thoroughly dried during the summer or dry season. They are always more or less damp, and the plastering in the lower story, and near the ground, generally mouldy, and the humidity of the atmosphere within is quite sensible to one unaccustomed to it.

These things are familiar to the physicians of the city,

and are frequently spoken of by those whom they particularly concern. Their agency in the production in some way, either as an exciting or predisposing cause of diphtheria, as well as some other diseases, is unequivocal.

If left to the weight of American authority, there can be no doubt that the question of the relation between diphtheria and insanitary conditions would be settled affirmatively. Dr. Frank Wells, the Health Officer for the City of Cleveland, Ohio, for the preparation of his report for 1876, obtained the written views of a number of the most widely-known physicians from several of the principal cities and colleges of the Atlantic States, a summary of which is given in his report. Some of them may properly be reproduced here. "Professor P. A. Penrose, of the University of Pennsylvania, believes diphtheria is caused by foul air." Professor J. T. Metcalfe, of New York, says "that although he does not consider diphtheria can be developed by ordinary uncleanliness, still it had surely been worse in the *badly-drained* and over crowded part of New York, where it existed as an epidemic." Professor Alonzo Clark refers the disease particularly to the crowded portions of the City of New York, "where, with other sanitary badnesses, the sewerage is imperfect, or does not reach the dwellings, pit privies being used instead of water closets." Professor Francis Minot and C. E. Buckingham, of Harvard Medical College, both regard it as a "filth disease." Dr. F. W. Draper, Registrar of Vital Statistics, Massachusetts, recognizes the fact of the greater prevalence of diphtheria "in localities of well-marked unhealthful character, as to drainage and filth." While in his opinion it is not demonstrated that the poison of diphtheria is generated by filth, "unquestionably filth fosters a predisposition, and once the poison is generated, supplies its nutriment."

Professor Wm. Pepper, of the University of Pennsylvania, also, while not regarding it as properly a filth disease, is "strongly convinced that bad drainage, foul sewers, tainted water supply, etc., do more than exert a depressing influence in diphtheria, as they do in many other diseases."

He thinks that these conditions "determine a special virulence and fatality in the disease itself, and, moreover, such an influence on the system as to render it more susceptible to the disease." Professors Budd, Thomas, Loomis, and Lusk, of New York, generally concur in these opinions, while Dr. J. Lewis Smith, of Bellevue Medical College, goes further, and expresses the opinion that there can be no doubt that diphtheria often originates *de novo* from insanitary conditions; the disease he states "to be most fatal and prevalent, in New York, in the poor quarters, where such conditions most abound, especially uncleanliness and privy and sewer gases."

The opinions of the distinguished medical gentlemen just referred to, should naturally have some weight in the settlement of a purely medical question, especially since these views have been formed from observation of the habits of the disease, its frequent, nay, almost universal association with insanitary conditions, and not simply in obedience to what may be considered to be the *fashion* of the times. They are among the leaders, rather than the followers, of American professional sentiment, and are not to be regarded as partial observers.

Dr. Wells also refers, in the report from which the above extracts have been gleaned, to the condition of a number of towns in Ohio, where diphtheria prevailed, showing its relation to the neglect of subsoil drainage, with low, damp localities, broken drains, improper sewerage.

"One fact," says the Report of the Massachusetts Board of Health, 1876, referring to the opinions given by two hundred and four correspondents of the Board, "is impressed on us with great force—that the disease is primarily connected with decidedly insanitary conditions; but that after a certain degree of concentration of the poison has been reached, among those living under bad hygienic circumstances, the best attention to sanitary law will not in all cases protect the more fortunate part of the community who reside in the best parts of towns and cities."

"The conclusions at which we have arrived," the Board

says, on pages 533 and 534, "from the facts reported to us by our correspondents, are as follows:

"I. That diphtheria is contagious, and may be, under certain circumstances, highly so.

"II. That it is also infectious, although not to so great a degree as scarlet fever, measles, and smallpox.

"III. That where other circumstances assist, its spread is promoted by dampness or moisture of soil, whether naturally existing, or produced, especially with a tough, impervious subsoil.

"IV. That the special connection between this disease and filth is not so clearly made out, although such a condition would undoubtedly aggravate the bad effects of moisture alone. The subjects of contamination of well water by human filth, and of the air of sleeping apartments by sewer gases, as predisposing causes of the disease, deserve more careful study in the future; our returns do not at present give us sufficient data for the expression of a positive opinion. Some of our correspondents suspected the introduction into the system through drinking-water of some septic influence which gave rise to the disease.

"V. That exposure to dampness and cold, especially among children and those otherwise predisposed to the disease, tend to induce diphtheria.

"VI. That Americans and foreigners in Massachusetts have been about equally subject to the disease, other matters than that of nationality being equal.

"VII. That individual or family proclivity, age, and depression of the vital powers from any cause whatever, are important factors in inducing this disease (as well as others) more rapidly and in a more fatal form, when other causes are also in some degree present.

"VIII. That there is also some atmospheric condition, of which little is now known, the presence of which, even if not necessary, is at least important in the causation of diphtheria."

It is unnecessary to proceed more at length with the literature of this subject. Probably all who have seen much

of diphtheria, have observed many cases for which it would be difficult to account, except upon the theory of contagion. It was imported, according to Dr. C. B. Bates, as referred to in the Fourth Biennial Report of the State Board of Health, into Santa Barbara from Los Angeles, spreading to other children of the town, although previously unknown there. It was introduced by importation from Santa Rosa into the Good Templars' Orphans' Home at Vallejo, as clearly stated by the Secretary of that useful institution, sustained by the attending physician, Dr. Anderson.

The case of the two children mentioned in another part of this paper, as returning home to find their sister sick with diphtheria, and themselves taking the disease soon after, and nearly simultaneously, although there had been no exposure, so far as known, to any other cause, and while nothing could be detected in the premises to which it could justly be attributed; the history of its origin at Dixon, already alluded to; the case of another child of fourteen years who contracted the disease while in attendance upon a school at which it was known there were several children attending who had just recoverd from the disease, and that of her sister, a married lady, who visited her from another part of the city, and was soon afterwards taken sick; these and others which have come under personal observation, all point to contagion, with a certainty as strong as very many of the facts to which we are accustomed to refer as demonstrating the contagiousness of scarlatina.

It is true, there are other cases in which the logical sequence is not so clear. Yet such is the case, too, of scarlatina, for the appearance of which in isolated localities we are often totally unable to account.

It is believed, again, that the facts advanced to show the relation between diphtheria and the ordinary insanitary conditions, more especially dampness of locality, although not sufficient to establish the theory with absolute certainty, do warrant the belief that such conditions are capable of promoting the disease, of impairing constitutional resistance to its other causes, and of aggravating the

former and increasing its fatality. Yet there are some at the present day who tell us that filth, however noisome, sewers, however foul, sewer gases, however freely they may enter our houses and circulate through the atmosphere of our bedrooms—all these are innocent things!

If the positions taken in this paper are well founded they direct us forcibly to the necessity of certain precautionary measures—to the adoption of certain rules which hygeine has pointed out.

This, after all, is the end and aim of our investigations, without a due consideration of which all the knowledge we have gained of this and other epidemic diseases would be practically lost.

First—Isolation of the sick. It is a fact which cannot be denied that physicians have themselves been too often remiss and careless in enforcing this essential rule.

Yet, if diphtheria be contagious, is it not equally as important as all admit it to be with scarlatina or measles?

Under this rule are to be considered the dangers of the school-room as a source of contagion. It is a fact susceptible of demonstration that not only diphtheria, but other contagious diseases, are often communicated by intercourse in the school and its play-grounds. It seems unnecessary to dwell upon the evidence in favor of the proposition. Concerning the contagious principle of diphtheria, its extreme tenacity has been shown, its capacity to retain its infective power for a considerable length of time, its adhesion to clothing, etc.

If these facts be admitted, does it not become our duty, as guardians of the public safety, to protest against the habit of sending children to school immediately upon recovery from an attack of diphtheria?

It is a rule which should be adopted by all schools, and we as physicians should so teach, to admit no child after apparent recovery from contagious diseases, diphtheria included, until its propriety is vouched for by competent medical authority.

Second—Cleanliness—and the formation of local Boards

of Health everywhere, in every incorporated city, to ins the people in the meaning and wide significance of term; to point out the methods of securing it, and, v necessary, to enforce it. If these two simple principl isolation and cleanliness—were universally taught enforced, can it be doubted that diphtheria, which nearly two years has spread over our State, bringing d lation and dismay into many communities, would be, 1 very great and gratifying extent, within our control?

Third—Drainage—underground drainage where ne sary—to carry the water from low places in the vicinity dwellings, and which in such places remains during 1 entire year, only a short distance below the surface. T danger from such localities, in a sanitary aspect, is ev greater than surface moisture or *over-ground water*.

Yet, unfortunately, the topographical features of ma of our towns are such that it is not easily guarded agains

But aside from these considerations, there are othe which especially concern us as physicians, growing out the legitimate relations which exist between the professio and the public. The subject of the sanitation of cities an towns, though particularly coming under the control an regulation of Boards of Health, has of late years, in view of the rapidly increasing attention paid to it, and the gen erally admitted influence it exerts over the public health, risen to one of far greater magnitude.

Boards of Health may suggest the measures which, in their judgment, are required; they may point out defects and the means of remedying them; they may even appeal to the law to sustain them; but however earnest their efforts, however wise and judicious their decisions, they are powerless to effect a change unless sustained by public sentiment. To create a sentiment in favor of sanitary works co-operation is needed—the aid of the medical profession everywhere.

It is strange what an amount of ignorance prevails upon this subject, even among the intelligent citizens of every community, notwithstanding all that has been said

and written in its behalf. This ignorance begets opposition, and this opposition is more and more determined in proportion to the cost of the reforms proposed—in proportion to the tax upon the pocket.

To the public, absorbed in the pursuit of business, the alarm of the health authorities brings no terror. Money expended in drainage, sewerage, and other measures having in view the promotion of the public health, is looked upon as money lost. There are no interest tables by which the value of the investment can be calculated.

The class to which reference is now made will spend money in opposition to what they conceive to militate against their personal notions of expediency, or their freedom of action, but will withhold the merest pittance at the command of authority, in furtherance of an object the benefits of which they fail to appreciate. "Millions for defense, but not one cent for tribute."

Hence, a public sentiment has to be created; not by books, for those whom it is most important to reach seldom read books upon such subjects; not by newspaper appeals, though these exert an influence over a large class of citizens. It is by the slow and steady growth of opinion inculcated and enforced by the advice and earnest remonstrance of the members of the medical profession, that prejudice can be overcome. The health officer in his official capacity can never reach this class. It must be done by the family physician, under the sanction of the confidence reposed in him, and in friendly social intercourse.

MORTALITY IN ORPHAN ASYLUMS.

At the last session of the society, a committee was appointed to inquire into the causes of mortality in the orphan asylums of the State; and although the subject does not, by that action, properly come before the Committee on Public Hygiene and State Medicine, it may legitimately be considered as one of great interest to the State at large. If it

be true that the mortality in these institutions has been in excess of that which ordinarily attends similar institutions elsewhere—especially if it can be shown that the deaths among their inmates have been greater than can be reasonably accounted for by the conditions to which they are necessarily subject, or than would be expected to occur in other equal collections of children similarly situated, and at a time when epidemic influences have been widespread throughout the State—surely, it becomes a subject for the serious consideration, not only of the special committee to whom it was referred, but of that which relates to hygiene in its broadest sense. Less than a year ago the writer, accompanied for the greater part of the time by one other member of the State Board of Health, visited nearly all of the orphan asylums and foundling hospitals of the State, with the intent to ascertain their sanitary condition at the time and for the year previous. Of the impressions made upon the minds of the gentlemen, Drs. H. Gibbons, Sr., and A. B. Stout, who were associated with him, the writer is not authorized to speak; but those which were formed by himself may be briefly related by a transcript of the notes sketched at the time, so far as they have any reference to this subject.

NOTES ON THE ORPHAN ASYLUMS OF THE STATE—1877.

ST. JOSEPH'S BRANCH, SACRAMENTO.—The building occupied for this asylum, or convent, is commodious and well arranged. Six rooms are occupied as sleeping apartments —one 24x32 feet, containing 11 beds; one 39x24, 20 occupants; one 10x26, 10 occupants; three 17x13, 3 beds. The health of the inmates of this establishment has been good, there having been *no deaths* and only trivial sickness. The drains connect with the city sewers. The water is supplied by the city, from the Sacramento River.

SACRAMENTO PROTESTANT ORPHAN ASYLUM.—The building used for this asylum is ample in size, and well adapted for the present purposes of the institution. It contains three principal bedrooms—No. 1, about 45x17x11 feet, contain-

ing 14 beds; No. 2, same dimensions and occupancy; No. 3, 30x18x11 feet, containing 17 beds. The ventilation is good. There were said to have been no deaths during the year, although measles has extensively prevailed—27 cases being reported. Three cases of this disease were observed at time of visit, and one case, not examined, said to be typhoid fever.

A very objectionable feature is the association of the well with the sick, even in the same bedroom. The sewage of the establishment is received into a cesspool—the connections being unventilated.

PROTESTANT ORPHAN ASYLUM OF SAN FRANCISCO.—Though not constructed upon a modern architectural design, this asylum is eligibly located, with large, well-cultivated grounds, and deserves to be commended for the order and system everywhere visible.

The sleeping apartments are well ventilated, and the number of beds in each room is not too great to allow a sufficient cubic air space to each occupant. The ceilings are too low, however, and the halls too narrow. The water closets, which are inside the building, are badly located with reference to the prevailing winds, and hence become at times sources of annoyance. Yet the health of the inmates—182—has been good, nor has any epidemic disease, except whooping cough and parotitis, prevailed. The deaths during the year have been but two.

PROTECTION AND RELIEF SOCIETY, SAN FRANCISCO.—The building occupied is of modern construction, admirably adapted for the comfort and health of the inmates. The present occupants number 180, about equally divided between the sexes. The arrangements of the building are excellent, and perfect system prevails in the management of the institution. In one or two of the sleeping apartments the "Cubic-air Ordinance" has not been fully observed, but the excellence of the ventilation compensates for the deficiency. No epidemic has visited the institution during the year. The deaths for 1876 were two in number. Inside water closets have been discarded.

SAN FRANCISCO ROMAN CATHOLIC ASYLUM.—This is one of the largest and most perfect institutions visited—supplied with every convenience, *except good drainage*, which will be available when the sewerage of the city has been adapted to the locality of the asylum. No epidemic disease has occurred, and but one death—the result of accident. The number of inmates reported is 271.

ST. JOSEPH'S BRANCH, SAN FRANCISCO.—Situated at the foot of the hill upon which the last mentioned asylum is located, and designed for younger children than the other receives, and for infants, the arrangements are less perfect than the other, and the sleeping rooms more crowded. The number of inmates is said to be about 200. This is the only one of the asylums in which the committee could learn that any epidemic disease had appeared. There are said to have been 60 cases of smallpox in the institution, with 10 deaths, in August, 1876. It is a little remarkable that in none of the asylums thus far visited there should have been any severe outbreak of diphtheria. In the infant foundling department the mortality is given at 30, though it is stated, in general terms, that "nearly all" of this class die.*

This asylum is located in South San Francisco, where the sewerage system has not yet been perfected. Hence the drains empty their contents upon the adjoining street, intersecting the surface by foul shallow gutters.

PACIFIC HEBREW ORPHAN ASYLUM, SAN FRANCISCO.—One of the most complete and commodious asylums, reflecting credit upon the liberality of its founders. In all its internal arrangements it is excellent. A present inconvenience is the want of a perfect system of sewerage, the drains all emptying into a cesspool, from which the liquid matter escapes into the street. From the cesspool foul gases arise, which, when the wind does not blow, are offensive. The city sewers do not extend to this portion of the city.

* In the report of the Assembly Committee, made at the recent session of the Legislature, it is stated that "out of 66 foundlings received during the past year—1877—*sixty died.*"

LYING-IN HOSPITAL AND FOUNDLING ASYLUM, SAN FRANCISCO.—This institution reports 36 births during the year, and the number of foundlings left at the door, 112, of whom two were dead when taken in. The number of inmates for the year is said to be 156, of whom 82 have died. The building, though recently improved, is located in the crowded and business portion of the city, and, though possibly the best that can be procured, seems unadapted to the purpose for which it is used. The primary object of the institution is to afford an asylum for misguided girls, and to rescue them from the hands of the abortionist—a laudable object which, in the opinion of the committee, deserves encouragement.

INFANT SHELTER, SAN FRANCISCO.—The design of this institution is to receive the young children of working women during the day, and to take care of them while their mothers are at work. The average number on hand is 23 or 24, there being in addition, seven boarders. One death by diphtheria is reported during the year—among the boarders—out of three bad cases. No mention is made, and no apparent information obtained, as to the mortality among these infants at their homes. The system for which this home is established, though possibly one of the necessities which befall the lot of poverty in a large city, can scarcely be considered a faultless sanitary measure, more especially for reasons connected with infant diet, the want of the mother's milk at regular hours, and the liability to the spread of contagious diseases.

SANTA CRUZ ORPHAN ASYLUM.—The building is well arranged, and a commendable degree of order, cleanliness, and neatness distinguishes the whole asylum. For the present there is no proper sewerage, the drains from the house emptying upon an adjoining lot. The refuse is carted off at stated intervals. Yet, out of 49 inmates reported, there have been no deaths.

ST. VINCENT'S, SANTA BARBARA.—A handsome, well arranged building, containing every convenience. There are at present (June, 1877), about 60 inmates. The dormitories

are large and well ventilated. The water used upon the premises is of excellent quality. There are no indoor water closets. Drainage from the kitchen empties into a cemented cesspool. Two deaths occurred during the year, of diphtheria, there having been seven cases.

PAJARO VALLEY ASYLUM (MALE), WATSONVILLE.—There are said to be 42 boys in this institution. In its general features it is inferior to some other asylums, especially as regards order, neatness, and the ventilation of the bedrooms. There were, however, no deaths in 1876, nor, indeed, for three years, although six cases of diphtheria have recently occurred.

GOOD TEMPLARS' ORPHANS' HOME, VALLEJO.—This is one of the best institutions of the kind, attractive in its architectural design and its surroundings. The number of inmates reported is ninety. There has been an unusual number of cases of sickness, 43 cases of diphtheria having been reported between the seventh of April and the early part of May, 1876, the deaths being ten in number. It is supposed by Dr. Anderson, the physician in attendance, to have originated by contagion. The principal defect in this, as in the other asylums visited, consists in the absence of any arrangement for the isolation of patients affected with contagious disease. One case of scarlatina occurred during the year. [It is proper to remark, that the defect above mentioned was subsequently corrected, and Dr. Stout, who afterwards visited the asylum, reported that, "at present every desirable convenience has been made for the perfect isolation of the sick."]

This, Mr. President, includes all the asylums visited. The results, as shown in the notes of which your committee have given an abstract, may serve to throw some light upon the condition of these useful institutions, and relieve any impression which may have been formed of their insanitary influences.

But while it is believed to be true that the mortality in our asylums and foundling hospitals has been no greater than the situation and character of the unfortunate inmates;

the crowded condition of some; the epidemic tendency so clearly manifested during the year under consideration, in our cities; the influence of hereditary disease in many; would have afforded reason to expect, it must be admitted, that there are some things connected with their management, evils inherent to the system adopted, and to such institutions generally, which call for reform.

We cannot contemplate the mortality in the two foundling hospitals, for example, without a shudder; and the question naturally arises as to its causes. Cannot this waste of human life be avoided—this failure of humane and philanthropic effort so liberally expended for the saving of this helpless class, be changed to success?

Looking at the causes of infant mortality in general—*i. e.*, without regard to special influences and surroundings—they may commonly be included under the following heads:

1st. Errors in nourishment. 2d. Errors in clothing and regimen. 3d. Errors in ventilation—bad air. Allusion is made to children under one year of age, and hence no mention is made of dentition or of the contagious diseases, which rank high in the mortality of older infants.

Though admitting of numerous subdivisions, the above may be regarded as the great causes of infant mortality; they affect a certain proportion of infants of all classes; they are not exclusively the heritage of the poor, nor do they belong to the children of any one nationality. They reap their harvest everywhere, and under all social conditions.

According to Quêtelet, "a tenth of the children born die in the first month after birth, and one-quarter before the year is completed." (Routh, Infant Feeding, page 2.) In England, in 1872, out of 825,907 births, 123,596 died within the first year—1 in 6—and according to the English Life Table, of 1,000,000 that are born 46,503 die in the first month, and 85,976 during the first four months—1 in 11.6—the ratio diminishing from the first week and month, until the end of the year, in the twelfth month, the proportion is 1 in 131.

In France it is but little better, where it is said that 1 in 14 die in the first month of life.

Even in Boston, during ten years—1862 to 1871—of 63,449 children born, of both American and foreign parentage, 11,157 died within the first year—about 1 in 5½.

It is true that in later years these alarming proportions have been slightly reduced. Sanitary influences have reached even this tender age, and, among the intelligent classes at least, the necessity of pure air, water, and food is becoming more and more generally recognized. Yet even as late as 1875, of 1,000 infants under one year, 270.6 died in the City of Boston, and in the same city, for the same year, the percentage of deaths under one year to births was 18.2—a decrease of only 1.3 per cent for five years.

In the asylums, the three general causes of mortality above alluded to are accountable, together with others which are special to them. Among the latter we find the condition of the children at birth and prior to admission, the hereditary causes of disease and those soon acquired, the exposure, the neglect, the insufficiency of food, in some cases overcrowding, the vitiated air of hospitals, and the impossibility of bestowing upon them the care and attention which the delicate organization of many of such infants requires. It is unnecessary to enter into an argument to demonstrate the existence of these several causes of disease, or to explain their deleterious influences. No one can pass through the wards of one of these institutions without being the eye witness of one or more of them. These, then, we may assume to be some of the special and extraordinary dangers to which the inmates of our foundling hospitals are subject.

Of the general causes of mortality above referred to—those common to all infants from birth to one year of age—the first in order is of by far the greatest importance, and is almost universal. It embraces questions which have not yet been fully settled, and the control of which is attended with some difficulty. It presses often with terrible force upon the poor, and it is one of those difficulties which even

wealth, with all its resources and its power over circumstances, cannot always reduce to subjection.

The kind of diet suitable for young infants will at once, if we except the mother's milk, excite discussion. As to the latter all are agreed; yet even here the serious question arises how far the milk obtained from a hired nurse is capable of supplementing that from the mother's breast.

Apart from the difference in care which the two classes of infants receive—in one case prompted by affection, in the other compelled by duty or necessity—it has been thought that there is something in the different relations sustained—some sympathy—some magnetism—which may be recognized by its effects, though it cannot be explained. Statistics bearing upon this subject are not sufficient to establish its reality, even though facts like this are on record: "Of 100 children suckled by their mothers [in Paris], 18 died in the first year; of the same number at nurse, 29 died." (Quêtelet's Researches, par Routh.) Or this other one, related by the same authority, that of 6 twins, or 12 children, 6 fed by the mother flourished well; of 6 fed by hired nurses 3 died, and 2 more were, at one year of age, puny and sickly looking.

But however this may be, the difference must be slight compared with that well recognized between children fed upon breast milk and others brought up "by hand." In the hospitals of Paris, Rheims, and X, where artificial food is either extensively or very generally employed, the mortality is 50.3, 63.9, and 80 per cent respectively, an average of 64.8; while in Parthenay and Lyons, where children were suckled at the breast, the mortality was 35 and 33.7 respectively—an average of only 34.3.

In London, as lately as 1871, out of 9,041 deaths among children under one year, 29 per cent are stated in the Registrar's report to have died from "want of breast milk." It would seem that further demonstrations of at least one of the evils included under the first class—the deprivation of the young infant of good, pure breast milk—is unnecessary.

The records of the foundling hospitals of Europe are full of the most appalling statements relating to this subject—statements at the recital of which the heart of humanity sickens.

The question of artificial feeding—the substitution of other food for that which nature designed for the young infant—is one which opens up a wide field for thought and comment, and cannot be fully considered here.

It is unfortunate that there should still be so great a difference of opinion upon this subject—a difference apparently the result of personal observation and individual experience.

It should not be lost sight of, however, that in the decisions which individual experience enables us to form as to the value of a particular kind of infant food, we are apt to overlook the other factors in the case—the purity of the material, the care bestowed upon its preparation, the regularity and method of its administration, its temperature, and the surrounding hygienic conditions—which may favor an opinion not sustained by others, whose observations are conducted under other circumstances.

Yet the questions involved in this subject are such as all of us are compelled to answer in our daily visitations among the sick, and which are even more important and difficult when applied to the delicate and oftentimes constitutionally depraved subjects of charitable or State supervision.

Without entering minutely into this subject, which would be foreign to the purposes of this report, it may not be considered out of place to call to mind the important physiological and chemical facts:

First—That food, in order to be adapted to the support of human life, should contain both the nutritive and respiratory elements in certain proportions, and that in so far as it deviates from the standard which nature has provided in the mother's milk, just so far it is at fault. It is unnecessary to do more than add that milk—practically speaking, cow's milk, for this is the only one universally procurable—is the only kind of food which answers this test.

Second—That for children, at the age at which infants are commonly received into our foundling hospitals, the starchy or farinaceous substances in common use, are quite inappropriate; yet it so happens that, in reply to inquiries made by the writer at these institutions as to the food usually supplied, these very substances were those which, in their various forms and combinations, were generally adopted.

Digestion is an intricate, not a simple process; it requires the co-operation of different organs and secretions. In the adult, and in children after a certain age, these organs and secretions are perfect; they act harmoniously, and devote themselves successively, or in combination, to the particular principle of alimentation they are designed to subdue to the support of life. Now, we know that the salivary glands in the very young infant are in a rudimentary state, and there is reason to believe that the special office, or one of the important offices, of their secretion, is the digestion of starch.

If these facts be true, it follows as a rational conclusion, that starchy or farinaceous food—the arrowroot, the sago, the powdered cracker, the corn starch, and other forms of food which have so frequently been advised under the name of "infant's food"—should, as a general rule, be avoided, or used with great discretion.

Not only so, but they fail to fulfill the first requisite alluded to, by the absence of the essential elements, in right proportion, such as a perfect food should possess.

These theoretical conclusions from known physiological facts are, doubtless, in accord with the practical experience of a large majority of the profession. Reasoning therefrom, the deduction seems inevitable, that among the causes to which the great mortality of our foundling hospitals is to be ascribed, we may reckon, in addition simply to the want of the nurse's milk, the too liberal use of amylaceous food.

Of other factors embraced in the "second class" suggested above, *exposure* is not the least in importance. It is not peculiar to the foundling institutions of California.

It has been a source of complaint wherever these asylums have been maintained.

The young infant, at the most sensitive period of its existence, often with insufficient protection by clothing, usually without the nourishment for which even its own earliest instincts appeal, is carried, possibly a considerable distance, in the night-time, and exposed, under cover of darkness, at the door of the asylum. Its condition is the least favorable to existence; often cold and shivering, weak, sometimes diseased, and not uncommonly exhibiting the evidences of inherited constitutional vice.

Occasionally they are already dead when discovered—victims to neglect and starvation—or, if still alive, survive but a few hours after admission. That such instances do occur, the records of the hospitals abundantly show, and it is not to be wondered that the mortality among them should reach its present proportions.

A similar state of facts was reported in 1836 by Mr. Brownlow, in his memoranda of the London Foundling Hospital: "It has been truly said, that the frail tenure by which an infant holds its life, will not allow of a remitted attention, even for a few hours. Who, therefore, will be surprised, after hearing under what circumstances most of these poor children were left at the hospital gates, that, instead of being a protection to the living, the institution became, as it were, a charnel-house for the dead? It is a notorious fact, that many of the infants received at the gate did not live to be carried into the wards of the buildings; and, from the impossibility of procuring a sufficient number of proper nurses, the emaciated and diseased state in which many of these children were brought to the hospital, and the cruel conduct of some of those to whom they were committed, the deaths among them were so frequent that out of the 14,934 received, only 4,400 lived to be apprenticed out, being a mortality of more than 70 per cent. (P. 175, Routh; Infant Feeding, pp. 46 and 47.)"

A third factor in this class may be considered to be *confinement to the wards of a hospital*, and its attendant evils—

not the least of which is impure air. With every provision for ventilation, with ample cubic space for each inmate, the atmosphere of a hospital does almost always become to some extent offensive and impure; and this is especially true, for obvious reasons, of a ward or nursery where many young children are collected together. The evil, for the same reasons, is still more aggravated where no separate room is provided for the sick—a defect observed in some of the asylums of California.

There are many difficulties in all public hospitals for children, in the way of preventing the existence of the evils spoken of—of the immediate removal of soiled napkins, for example, by which the air of the nursery is often seriously contaminated. Add to these considerations, neglect of cleanliness, want of open air exercise, a frequent exclusion of the nursery from the pure, bright sunlight, and we have a brief summary of defects in the hospital system as applied to infants, which do not necessarily belong to home management, and to which is to be attributed the mortality so fearfully in excess of that which prevails in private life. It is a little singular, that notwithstanding the general prevalence of epidemic diseases, continued during two years, so few deaths should have occurred from these influences among the inmates of our asylums, and that cases of these diseases among them should have been so limited in number.

During the year 1866–7, from all the asylums visited—twelve in number—located in different parts of the State, containing an aggregate of 1,369 children, only ten deaths by smallpox, and thirteen from diphtheria, were reported. Of the latter, ten cases were in one institution. It is scarcely questionable that many of these could have been avoided by a proper and prompt system of isolation. There should be in all these institutions where so great a number of children are associated, a distinct apartment detached from the main building, where all contagious epidemics should be treated. The habit of permitting children sick with diseases of different kinds, some of them contagious, to remain in the same room or ward, and, more pernicious still, to

receive them into the nursery or play-room for those who are well, as the writer has on two or three occasions seen in these institutions, cannot be too strongly criticised.

Summing up the results of our investigations into the important subject of the mortality in the orphan asylums of the State, it may fairly be concluded that, while the mortality in the two foundling hospitals examined was so large as to justify inquiry into its causes, that of all these institutions collectively, was exceedingly small—only about eight per cent; that the deaths among the unfortunate inmates of the foundling hospitals were probably attributable to causes recognized as being almost inseparable from such institutions where the system of wet-nursing cannot be pursued; and that, in addition to this common cause of infant mortality, we are to consider the peculiar conditions by which the inmates are surrounded—the circumstance of birth and inheritance, of neglect, desertion, and exposure, and the slender vital force which most of them possess. All these things considered, it perhaps is not surprising that of 156 infants born in or received into one of these foundling asylums during the year 1876, 82 should have died, or, that of the entire number admitted into another similar institution, it should have been frankly admitted that "nearly all died." "Even in Massachusetts," said Dr. Jarvis, "even in the Massachusetts Infant Asylum, managed with the best charity and wisdom of the State, provided with the tenderest and most discreet attendance, with airy, properly warmed and ventilated rooms, with clothing most suitable, and food most digestible and nutritious that can be obtained, including wet-nursing as part of the nutriment—with all these means of sustaining life, 48 per cent have died in its four years' operation." (State Board of Health, 1873.)

When such a record is made for Massachusetts, where every possible provision is secured for the comfort, safety, and well-being of these tender subjects of charity, how can better things be expected of California, where wet-nursing is impossible, where the supply of ordinary nurses is often inadequate to the duties devolving upon them, where the

buildings provided are unsuited to the purpose, poorly ventilated, situated, as one of our infant asylums is, in the center of a large and populous city, shut off from the sun except upon the front and rear—where, in fact, economy of management is of necessity the ruling principle? Is it to be wondered at that, under such discouraging circumstances, the mortality in the particular institution alluded to should have reached the startling proportions of 55 per cent of all infants under charge? It may be some consolation to know that this death-rate is no greater than that of New York City Foundling Hospital, in 1869 and 1870.

It is easier, Mr. President, to point out defects and explain their causes, than to suggest a remedy. Perhaps the Chairman of the committee to whom this subject was especially referred, will be able to solve the problem.

DISEASE FROM EATING PORK—(TRICHINOSIS.)

Through the kindness of Dr. N. Williams, of Richland, Sacramento County, your committee are enabled to present the particulars of a few cases of disease arising apparently from eating diseased *pork*. Inasmuch as deaths from this cause have, so far as has come to the knowledge of the committee, been uncommon in California, the history of the cases referred to possess unusual interest. I cannot do better than to produce the record of the cases as transmitted to me by Dr. Williams, in his own clear and intelligent manner:

RICHLAND, SACRAMENTO COUNTY, CAL., March 25, 1878.

F. W. HATCH, M. D., *Sacramento City:*

DEAR DOCTOR: At your request, I send you to-day a brief report, from memory (not having taken notes at the time), of the fatal endemic occurring in my practice in October last. I will premise by describing the locality and surroundings. In the southern part of this county, some four miles northwest from Benson's Ferry, which crosses the Mokelumne River, and about the same distance east of Snodgrass Slough, there is a small section of country, per-

haps 400 acres, known as the "Ehrhardt Mound." The most elevated portion of this tract is perhaps twelve to fifteen feet above the surrounding tule bottom, to which in all directions there is gradual descent. The soil is a light alluvium, largely mixed with fine sand, porous, drainage good, no pools of water remaining on the surface, and has been under cultivation twenty years or more. On this eminence, within 200 yards of each other, reside the families of three brothers, German.

On the 8th of October I was called to see a sick child in one of these families. On my arrival I found in the three families four little sufferers, varying in age from three to eight years—two boys and two girls. They had been ill some ten days when I was called, with what their mothers said was "summer complaint and vomiting," and they had tried every domestic remedy in their reach, said by their neighbors, who are always plenty and officious at such times, to be good in such cases, but all without avail—"they grew worse every day." I found the three youngest laboring under the following symptoms: tongue coated, having a pasty appearance and moist; appetite much impaired; occasional vomiting; bowels quite loose, discharges frequently copious and having the appearance of a mixture of ashes and water, no blood; urine rather scanty, high-colored, resembling at times strong coffee, and a grayish mucoid sediment was often observed; œdema of the face, eyelids, hands, feet, and legs, was an early and prominent symptom, which disappeared gradually, lasting from one to three weeks. One of them had troublesome tympanites; pulse little above the natural standard, feeble but regular; fever of a low grade most of the time; skin moist, at times perspiration rather free; some thirst, though not urgent, cold drinks preferred. Another prominent symptom, and very detrimental to the patient, was extreme wakefulness, which could not be overcome to any considerable extent by anodynes. This symptom, like œdema, obtained in every case; intellect unclouded. The eldest of the four children, a girl of eight years, had had œdema, but it had passed away when

I first saw her. She was lying on her back in bed; shoulders elevated; head inclined forward; knees drawn up; was unable to move; wanted to be let alone, it gave her such severe pain to stir; deglutition painful; no swelling of throat or tonsils in either case. This patient had obstinate constipation.

I treated these cases with tonics, mild astringents, anodynes and stimulants, without any improvement in either case, at any time. They failed gradually, becoming considerably emaciated, and died in a comatose state—all four of them—within one week; the last on the 26th of October, about four weeks from the time the first one was taken sick.

During my attendance on these children, two other children of these families (girls—cousins, fourteen years old), were taken ill. Œdema, the same as the others, and little feverish. I gave them full doses of compound cathartic pills; they were much relieved after thorough catharsis; one of them recovered completely in a few days; the other had a mild relapse, which lasted some four weeks, but finally got well.

The father of this girl was also seized about this time with the characteristic œdema, which was confined to his body and legs, but he neglected treatment on the start, and kept around, trying to "work it off," but finally had to yield. His convalescence, like that of his daughters, was tedious, but recovery seemed to be complete eventually. Tonics were the chief remedies in their cases.

Here I had encountered an array of symptoms which I had not before met with during a practice of thirty-five years, and I had become thoroughly convinced (when they were dying off at the rate of four per week) of the identity of the malady they were all afflicted with, and also that some subtle agent or poison was at work of which I was ignorant. I had noticed that the water for family use was obtained from bored wells, and was good, though a little hard; also, that their privies were some rods from their

dwellings. Thus far their sanitary fixtures were good. I then investigated the culinary department of these unfortunate families, and soon ascertained from a neighbor of theirs, an intelligent German lady, that a few days before these children were taken sick, a hog was butchered by one of these families, and all three ate of it, using most of it while fresh, considerable of it in the form of head-cheese and sausage, of which the children were very fond. This lady and a cousin of hers—a lady—and a hired man, ate of this pork one meal, while fresh, and were sick the same afternoon, vomiting and purging. They soon recovered. This hog was sick the winter before, and though eating heartily all the time, was barely able to walk. It finally recruited up during the summer, and was killed in the fall.

A day or two after being made sick by eating of this pork, this lady told these folks how it served her and her cousin. They laughed, and said to her: "You ate some of that old sick sow." After this information I tried to obtain some of this pork for microscopic inspection, but it was all used up.

Now, what was the matter with these people? Was it trichinosis, from eating trichinous pork? I am inclined to think so; I would like to have the opinion of others.

Yours truly,

N. WILLIAMS.

The particulars of the above cases are given almost precisely as related to the writer by Dr. Williams, at the time of their occurrence. They were then considered to refer to the presence of trichinosis, and an ineffectual effort was made to procure a portion of the suspected pork for examination.

The prominence of nausea and vomiting, of pain and diarrhœa of a peculiar character, of muscular soreness, of anasarca, of free perspirations, the fact of the symptoms having occurred only in those who had partaken of the pork, not confined to one family, but to three, and the

absence of any other recognizable cause, seemed to concur in rendering the diagnosis almost complete.

If these suspicions are correct, the fact is an important one, and deserves to be recorded. It suggests also the necessity of the exercise of caution in the use of suspicious pork, or of pork incompletely cooked.

REPORT OF COMMITTEE ON OPHTHALMOLOGY.

BY GEO. H. POWERS, M. D., CHAIRMAN.

As the present Committee on Ophthalmology is the first ever appointed in this society, it may be proper to bring to your notice some of the more recent improvements made in this branch of surgery, without regard to the precise term covered by our appointment as a committee.

Our labors would, however, have been brought to a speedy close, if we could give to the statements of the senior Professor of Surgery on this coast such respect as we would gladly give to one in his station, and to one of his age and experience in practice. We find the startling preface to his published lectures on Ophthalmic Surgery that (I quote literally) "the reason I did not omit the diseases of this organ is, that the treatment of them is not half so efficient and effectual as it was twenty years ago." *Ipse dixit!* In truth, it requires but a brief examination of those printed pages to discover what were the existing theories of pretty good guessers upon diseases of the eye, in the middle ages, and up to the time of the discovery of the ophthalmoscope! It should be a matter of regret in this society that one of its own members should be the original inventor of the knowledge that the present age is so far behind its predecessor!

The original ophthalmoscope of Helmholtz, with its many early modifications, was best adapted for examination by the "indirect method," so called; that is, the observer's eye with the mirror were at a distance of twelve to eighteen inches from the observed eye, and the image of the fundus was enlarged and inverted by a lens of two or two and a

half inches focus held near the observed eye. As each observer became more expert in the use of this instrument, he found great advantage in many cases in discarding the object lens and bringing his own eye and the ophthalmoscopic mirror very near the observed eye, so as to see the fundus of the eye itself, instead of its image. In this case, there being no inversion of the object under observation, the examination is said to be by the erect or virtual image, or by the direct method. Dr. E. G. Loring, of New York, has perfected and given to the profession the best ophthalmoscope yet devised for this purpose, and it is rapidly superseding all others, as it is equally convenient for use in the direct and indirect methods, and by its great variety of auxiliary eye-glasses, enables an expert observer to determine the refraction of the observed eye, as well as its condition in respect of health or disease. The latest instruments of this form have the focal power of their auxiliary lenses marked according to the metric system, as do also the test glasses now made and used by oculists. The "unit" in these glasses is called a "dioptric," and is very nearly equal to the 1-36 of the former French scale. The No. 2 is two "dioptrics," or nearly 1-18 of the old scale, and so on.

To render easy the transition from one scale to the other, Snellen has devised a very ingenious instrument, called the phakometer, by which the focal power of any lens can be instantly determined in units of either scale.

Carter's fixed ophthalmoscope, for purposes of demonstration in classes, and Forster's perimeter, for determining and recording the limits of the field of vision, are two very valuable contributions to the armor of the ophthalmologist, which may be briefly mentioned here as not being very generally well known, though not of so recent invention as the appointment of this committee.

Dr. Formad, of Philadelphia, has given (in the American Journal of Medical Sciences for January, 1878), a most interesting account of his investigation of the nerves of the iris, a subject hitherto obscured, according to him, by insufficient knowledge of the best methods of preparing the

microscopic specimens. By the special means described and employed by him in above fifty specimens of iris of rabbits, he was able to make out five distinct circles of nervous plexuses, not lying all in one plane, but in different layers of the structure of the iris, most of the larger trunks lying in front of the blood vessels. He found that the nerves enter the iris from the ciliary muscle, through its outer peripheral border, in comparatively small trunks, and form an irregular dense circular plexus round the whole circumference of the iris, from which proceed the other four concentric circles by anastomosing trunks. Dr. Formad found no ganglia, but frequently saw conglomerations of protoplasm on and between nerve-trunks, which he thinks may answer to the ganglia and "ganglion-like masses" spoken of by other observers.

A radical change has taken place in the views of ophthalmologists upon the etiology of glaucoma. This disease was formerly considered a neurosis, the increase of intraocular tension being supposed to be caused by an increase of production of the fluid contents of the globe, in consequence of irritation of the ciliary nervous system.

It is now claimed by many of the best pathologists, that the increased tension is caused by an increasing density of the sclerotic, which prevents exosmosis through that tunic. In place of the iridectomy introduced by Von Graefe for the cure of this disease, or the relief of its symptoms, it is now claimed that equal benefit can be obtained by any operation which will furnish a means of filtration or drainage. By some, a simple incision through the sclera is considered sufficient, as the cicatrix resulting allows exosmosis more readily than the hardened sclera. Wecker advocates and employs a seton of fine gold wire introduced through the external tunics of the globe, thus keeping up a steady drainage; and it is claimed that as a rule no irritation is caused by the presence of the foreign substance.

This gold wire seton has also been used, with at least temporary success, in cases of separation of retina by effu-

sion; but the operation is as yet too new for a decided report on the permanence of results.

Noyes' operation of "outscooping" the entire contents of the globe, as a substitute for enucleation, for prevention of sympathetic ophthalmia, has found several advocates, and in the cases for which it is suitable may be much more satisfactory to the patient than the removal of the entire globe, which seems so formidable an operation to most persons.

Investigations of myopia in school children, begun in 1867, by Cohn, in Europe, have been carried on, and are still zealously made by some of the best oculists of our own country, and a pretty uniform increase of the degree of near-sightedness from year to year clearly proved. Furthermore, Dr. Loring, in a very ably-written paper, has argued that the human eye, in consequence of increasing devotion to study and reading, is actually changing form, becoming more myopic with each generation.

Boll has recently proved, by careful experiments, that the retina receives impressions somewhat after the manner of a photographic plate, being furnished with a delicate coating of purple-red pigment, which is constantly undergoing destruction by light, and as constantly reproduced in darkness, during life and health, but which finally vanishes in very few seconds if exposed to sunlight after cessation of life. As the sodium light, however, does not destroy this "see-purpur," Boll succeeded in taking an impression of a window sash on the retina of a living rabbit, which was distinctly visible after the rabbit had been beheaded, and the eye removed and dissected under this light. This experiment has also been successfully repeated by Drs. Wadsworth and Bowditch, of Boston, and by others.

The subject of color blindness has lately been brought into prominence in connection with the causation of railroad and steamboat accidents, and it is found that the inability to distinguish a red light from a white or green one is much more common than had been supposed. As

the incurability of color blindness has been abundantly proved, it becomes at once a most important necessity that all employés of railroads or steamer companies, who have to use colored signals, should undergo rigid examination in this respect.

The use of calabar bean has of late been greatly extended among ophthalmic surgeons, especially in peripheral ulcers of the cornea, and in the after treatment of operations for extraction of cataract, and of iridectomies; also, in any inflammations in the ciliary portion of the globe, as it is found to lessen the ciliary circulation, and by its myotic effect to tend to prevent adhesion of the edges of the iris in a corneal wound. It is used in aqueous solutions of the extract, or of the alkaloids eserine and physostigimne sulphate. Antiseptic qualities have also been claimed for it, but have not been confirmed by tests made for that purpose.

Pure carbolic acid, applied with a fine pointed pencil, has been used with success in some forms of granular conjunctivitis, of episcleritis, of enlarged conjunctival vessels, and in ulcerative inflammation of the margin of the lids. Its use is attended with very little pain, and the escharotic effect is very decided. I may notice very briefly an operation not described in any books that I have seen, which has proved very useful in my hands, as in those of Dr. A. M. Wilder, who suggested it to me, for the relief of the unsightly deformity and the great sensitiveness of corneal staphyloma. In many of these cases there is great, though not apparent, hypertrophy of the corneal substance, and in these we have obtained great reduction of the deformity, and completely relieved the sensitiveness, by transfixing the cornea from above downwards, with two or three curved needles, armed with ligatures, not entering the anterior chamber at all, then slicing off the protruding portion, bringing the needles through, and tying the ligatures tightly. In some cases it becomes even possible to restore some vision, by an iridectomy performed later.

In preparing this report, the Chairman of your committee has understood it to be his province not to give you in detail all that might properly be expected in a similar paper by an ophthalmological society, but only to present a brief epitome of some of the advances recently made in this specialty, to show you in what directions ophthalmic science is progressing.

FIBROID TUMOR OF THE UTERUS.

BY JOHN SCOTT, M. D.,
SURGEON-IN-CHIEF CALIFORNIA WOMAN'S HOSPITAL.

GENTLEMEN: The subject of fibroid degeneration of the uterus is unfortunately too familiar to us all, and must, for the gynecologist, ever have a painful interest, for we are not infrequently obliged to witness sufferings which we can but partially alleviate, and a steady progress towards a fatal termination we feel ourselves powerless to avert. I refer more particularly to those enormous growths which involve the entire removal of that organ and its appendages as the only cure—an operation not yet recognized as one of the legitimate enterprises of surgery. Fortunately, these cases are not common, and we have more frequently to deal with the ordinary uterine fibroid; but even here, the utmost skill and ingenuity at our command are often taxed to the utmost to save our patient from pain and exhausting hemorrhage, which, unrelieved, are a constant peril to existence. Till within the last few years the etiology, pathology, and treatment of uterine tumors have been but imperfectly understood, but, thanks to the teachings of such eminent men as Sims, Emmet, Thomas, Barnes, Tait, McClintock, and Matthews Duncan, we are now much better able to contend against the difficulties of their management, and, though the mortality is still larger than we like to contemplate, we are daily gratified by results which were formerly looked on as unattainable. Still, notwithstanding all that has been so ably written on the subject, I think you will agree with me in stating that we have yet much to learn; that each individual case is a study in itself; and that when

surgical interference is called for, we ought to know clearly *when* it is necessary to operate, and what are the difficulties and the *dangers* attending it. I am not vain enough to imagine that I can add much to our present knowledge, but I think there are some points of a practical nature which might with advantage be more prominently noted, and a due attention to which would materially aid us in their management; and these I purpose adverting to towards the end of this paper.

When absent in the East last year, a patient was admitted into the California Woman's Hospital, the details of whose case I now lay before you.

Mrs. C——, aged 37; admitted April 20th, 1877. History—Married 10 years; 6 children; 2 abortions; last 4 labors severe, but natural; menstruated at 16; last period, March 20th, 1877; duration of illness, 6 years; previous health good; has lost a great deal of blood at each confinement; had severe hemorrhage at birth of last child, and was so reduced that for three months she could not be raised without fainting, and was six months before she recovered her strength; during the last six years has had menorrhagia, frequently amounting to flooding, and lasting from twelve to fourteen days, accompanied by pain. Three years ago she noticed an enlargement of the abdomen, which still exists, and is very painful at her periods; patient thin; complexion sallow, and presents the appearance of constant suffering; mostly confined to bed; heart sounds normal; pulse, 90 and irregular; temperature, 98; appetite fair; no thirst; extremely nervous.

Examination.—Uterus low down, and lying a little to the right; is enlarged, and a round, smooth, hard tumor is felt above the pubis; cervix hypertrophied and indurated; os contracted; sound passed 5½ inches posteriorly and a little to the right.

Diagnosis.—Fibroid tumor of the uterus.

Treatment.—Hot vaginal injections and rest in bed; quinine night and morning; citrate of potash during the day.

April 21—Catamenia came on, and became so profuse

that on the 25th a tent was with difficulty introduced to arrest hemorrhage.

April 26—Had a chill during the night; pulse, 150; temperature, 103; under ether the tent was removed, but the cervical canal was so contracted that it was found impossible to reach the tumor; the uterus was injected with hot water, followed by iodine, and before the patient left the table the temperature fell to 101½, and pulse to 120.

April 27—Pulse, 96; temp., 98; slept well; no pain; palpitation of heart; ordered a purgative, to be followed by administration of thirty minims of fluid extract of ergot, three times a day; continued quinine night and morning.

May 1—Doing well.

May 7—Slight hemorrhage still continuing.

May 8—Continued ergot; no expulsive pains produced by it.

May 15—Cervix incised, but not deeply, on each side; continued ergot.

May 28—Catamenia; flow not so great, but free.

May 29—Sponge tent introduced; opium suppository.

May 30—Tent removed; instant rigid contraction of os internum; exploration of interior impracticable; injected uterus with hot water, followed by iodine.

June 1—Flow arrested; patient comfortable.

June 12—Doing well.

June 19—Bloody discharge.

June 20—Patient examined by Dr. J. Marion Sims, who advised non-interference for the present.

June 22—Dr. Scott took charge; on examination, found discharge continuing; os contracted; cervix indurated; believing that further attempts at dilation would be hazardous, I determined to incise cervix.

June 26—With scissors divided the cervix on each side up to vaginal junction; tamponed the os with glycerine cotton.

June 27—Condition good.

June 29—Rather free bleeding, which was found to come from incision; arrested by pledget of iron.

June 30—No hemorrhage; pulse, 110; temp., 100.

July 23—Catamenial flow has been almost natural, and only five days duration; inserted a large sponge tent with the greatest ease.

July 24—Removed tent, and was able to make a thorough examination with two fingers in uterus; found a tumor occupying the entire front wall as high as the fundus, and measuring about three and a half to four inches across; it was somewhat prominent in center, but imbedded in the uterine wall, and no attempt at enucleation had taken place. I at once passed up Sims' narrow knife, lying flat on my finger, and having turned the edge forward, made a perpendicular incision for a depth of about two lines; free bleeding followed this operation, but was easily arrested by hot water injection and iodine.

July 26—Condition good; ordered thirty minims ergot, three times a day.

July 29—Sharp, darting pains, and bearing down; some discharge.

August 17—Catamenia; flow scanty.

August 23—Small sponge tent introduced in forenoon and a large one in afternoon.

August 25—Removed tent and examined; enucleation had begun; tumor more prominent, and beginning to fill the cavity; former incision had evidently not opened the capsule, as it had closed; I now incised freely for about two inches in length; free bleeding followed, but was soon controlled by hot injections and iodine.

August 26—Pain and bearing down; p., 100; temp., 99; ordered opiate enema and poultices.

August 27—Expulsive pains very severe; p., 112; temp., 101½; continued ergot and opiates.

August 28—Constant bearing down pains, and on examination found tumor presenting within an inch of os; free serous discharge, and rather offensive.

August 29—Discharge profuse and offensive; as the canal was quite pervious, the nozzle of Davidson's syringe

was introduced, and hot water with carbolic acid—1 to 60—thrown in night and morning; p., 100; temp., 100.

August 31—Expulsive pains intolerable; stop ergot; discharge very free and offensive.

September 1—On examination tumor found distending os, but not external to it; p., 112; temp., 99 4-5; constant pain and sweating profusely; blood poisoning going on, but not seriously; p., 112; temp., 99 4-5; as the tumor had not entered the vagina I was desirous of waiting, but as my colleagues in consultation thought the risk from septicemia great, I consented to operate. The patient having been brought deeply under the influence of ether, with a strong vulsellum, I commenced steady traction, at the same time breaking up the adhesions with the finger and sound. I found the bands of connective tissue exceedingly strong, and difficult to break up, but with the aid of Thomas' scoop I succeeded in doing so, but not completely. I noticed, however, that traction long continued had but little effect, and, after the lapse of half an hour, was inclined to give it up, when the tumor suddenly gave way, and the greater portion of it was delivered, but apparently unaided by muscular contraction, as I found the uterus open and flabby, with the remaining portion of the tumor high up in front, and still attached. I then bethought me of injecting very hot water, which instantly brought on contraction, and having again seized the tumor, I removed it rapidly and easily. There was but little bleeding, and I contented myself with the injection of hot water, followed by Churchill's tincture of iodine, with which I swabbed the cavity. The tumor weighed a pound, and showed no pediculation whatever.

September 2—Tongue rather dry; pulse, 120; temp., 100. Ordered hot injections, carbolized, twice a day, into uterus.

September 3—Flatulence—but doing well.

September 4—Doing well. Ordered an ounce of castor oil, and 7½ grains of quinine, night and morning. Colored discharge, but odorless.

September 15—From this time improvement was rapid.

September 18—Complains of pain over the womb. Ordered blister, and continued quinine. Pulse, 123; temp. 98 4-10.

September 20—Doing well.

September 23—Attack of diarrhœa, which was easily checked.

September 28—Catamenia; flow normal; no distress.

October 17—Under ether, pared the edges of cervical incision, and united them by six silver sutures.

October 23—Removed stitches; perfect union.

November 10—Discharged cured.

For various reasons the above case is of great interest, and worthy of some remarks, as typical of a class which has been formerly regarded with dread by the profession. We had here a patient who had been suffering from pain and exhaustive hemorrhage for a period of six years, and had in consequence become anemic and debilitated, to such a degree that she was almost constantly confined to bed—the tumor not very large, but firmly imbedded in the uterine wall, with, on the part of nature, apparently no attempt at enucleation, and with an indurated cervix and a contracted os—a state of things so unpromising, that even so bold an operator as Dr. Marion Sims advised non-interference for the present. With this opinion I found it difficult to coincide, for it was but too evident that, so long as the tumor remained *in situ*, any attempt to permanently control or arrest the hemorrhage would be ineffectual; while on the other hand, years might elapse before nature, unaided, would effect its expulsion. Under these circumstances I decided, not simply on an incision of the cervix (for that had been done during my absence), but on a bilateral division as far as the vaginal junction, including, as it does, the circular fibers of the neck. I had three objects in view: first, the partial arrest of the hemorrhage; second, the excitation of uterine contraction; and third, that I might with ease and safety largely dilate the canal by sponge tents, so as to gain free access to the interior, for further manipulation—and these objects were fully accom-

plished. I did not, as you will note, insert the sponge tents after division, for I consider such practice dangerous; but I waited till after the following period (during which the flow was nearly normal), while I at the same time took care to prevent the edges from uniting, and when I did dilate, the cavity was opened up so effectually that I had no difficulty in tracing the dimensions of the tumor, and incising its capsule.

In my opinion, the question of dilatation of the uterus, in connection with the treatment of uterine fibroids, has not received the due attention which it merits, for I have more than once seen the most lamentable results from incautious attempts at dilatation by sponge tents, where the os and cervix were hard and resisting. I have seen, as the result, a low and insidious form of inflammation induced, followed by rigors and sweating, the sure precursors of the pyemia or septicemia, which have invariably destroyed the patient. The expert will of course avoid these dangers, but we have all to learn by experience; and I would lay it down, as a rule, that a free division of the cervix—an operation devoid of risk, and easily remedied afterwards—should, in the manner above detailed, precede dilatation. I would go still further, and would also lay it down as a rule in cases where, from conformation or otherwise, the removal of the tumor was deemed impracticable—for in such cases I have found free dilatation of the cervical canal, followed by injections of strong tincture of iodine, wonderfully effective in controlling hemorrhage, and, in one case certainly, followed by absorption of the growth itself.

The attention of the profession has been largely directed of late to the effect of ergot, administered hypodermically, and in large doses, on the growth of uterine fibroids. It has been claimed that it checks uterine hemorrhage, arrests their growth, and in some cases produces atrophy and absorption, as the result of uterine contraction. I must admit, that in my hands it has failed to produce these results, though I have given it what I think would be considered a fair and honest trial in several cases, and for

lengthened periods. In sub-peritoneal growth it is, of course, useless, but in sub-mucous ones I should expect from it the greatest assistance, in hastening expulsion. In interstitial growths, however, and before enucleation has proceeded to such an extent as, in the words of Dr. Emmet, to bring the tumor "within the action of gravity," it is certainly ineffective; and this has been exemplified in the present case. The patient was admitted into hospital on the 20th April, and shortly afterwards was put under the influence of ergot, in full doses, but up till the time preceding the division of the cervix and incision of the capsule, and before the process of enucleation commenced, it failed to produce uterine contraction. No sooner, however, had enucleation fairly begun, than the ergot, in precisely the same doses, brought on the most marked expulsive pains, which at length became so violent as to oblige us to suspend its use.

One word as to the operation itself. I have to confess that I believe I operated too soon, and that had I waited till the tumor had fairly entered the vagina, the extreme difficulty which I experienced in the removal, and the risk to which I exposed the patient by such rough handling, would certainly have been avoided. My colleagues dreaded the dangers of further blood poisoning—and there certainly was danger—but in former cases, I found that so long as the pulse and temperature was not much above the normal standard, I could wait with safety for protrusion—particularly when aided by hot vaginal injections and quinine. As was seen, enucleation had only imperfectly taken place, and the positive immobility of the tumor under the strongest traction, and the extreme difficulty of separating the adhesions, even with the aid of Thomas' scoop, could only be appreciated by being witnessed.

In Dr. Emmet's admirable monograph on uterine fibroids, he illustrates, in a manner not hitherto understood, the effect of steady traction, aided by uterine contraction, in

effecting the gradual pediculation and expulsion of the tumor. I looked for it in this case, but it did not take place. The tumor was lifted out of its bed, and no pediculation was visible, clearly owing to the fact that I had anticipated the efforts of nature by operating too soon—an error I am not likely to commit in future. I may here state that I regard Thomas' scoop, which I now exhibit, as a valuable aid to us in operation. It materially assists us in breaking up attachments, and the serrated edge being directed inwards, no damage can be done to the uterus. The instruments usually needed for the removal of fibroids are, two or more strong vulsella, Thomas' scoop, a strong steel sound, a pair of strong scissors, curved on the flat, and an ècraseur. The chain ècraseur I have long discarded as clumsy and difficult to apply, but the single wire ècraseur I now show you I have found of the utmost service, and entirely free from risk, while easy of application and not followed by the hemorrhage which sometimes takes place after division of the pedicle by knife or scissors. The wire is steel, *unannealed*, and can be made to take and retain any angle you may desire, and when slipped over the body of a tumor, guided by one or two fingers in the uterus, it can be with ease adjusted round its neck, and if the screw is worked very slowly, the division is perfect—with a pedicle high up, its aid is invaluable.

In one case of enormous fibroid, too large for delivery through the os, I have divided, first one third and then a second third of it in the uterus, and delivered them, before taking away the remainder; and after doing so, I examined and found another small fibroid right at the fundus, which I scooped out with the finger and extracted. To guard against hemorrhage after extraction, I have never found it necessary to do more than inject very hot water, and then swab the interior thoroughly with Churchill's tincture of iodine.

EXCISIONAL SURGERY OF THE ANKLE JOINT.

BY JAMES MURPHY, M. D.,
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I desire to bring before the State Medical Society some facts regarding excision of the ankle joint, as I believe that in the whole field of conservative surgery there is no operation which promises so good a result with so little danger to life as this one.

Excision of the ankle joint was first carried into practice by the elder Moreau, in 1792, and by Moreau the younger, in 1796. For more than half a century the operation was partially abandoned, being subjected to all manner of praise and dispraise, until the year 1851, when Hancock, in England, again brought the operation before the surgical world by its oft successful performance. In summing up our latest statistics, we have thirty-seven British cases, reported by Messrs. Hancock, Holmes, Erichson, Mulvaney, and Morney. Twenty-five recovered with good and useful limbs; seven died; and two submitted to amputation, while the result of three cases was unknown. This exhibits a mortality of about twenty per cent.

Dr. Spillman has collected seventy-three cases, fifty of which were complete excisions of the joint, while twenty-two were incomplete. Fifty recovered; fourteen died; six submitted to amputation; and three had not terminated. This likewise gave a mortality of about twenty per cent.

It is to be regretted that American surgeons have not recorded their cases more fully, as I have no doubt they would show as good, if not a better record, than their transatlantic brethren.

Of nineteen cases recorded by Dr. S. W. Gross, eleven recovered, and eight were fatal, showing a mortality of more than forty-two per cent. These cases were gunshot wounds, and like European cases of the same class, throw a dark shadow over the mortuary record, which invariably accompanies everything relating to war.

Dr. Gross, the elder, beautifully describes the operation, gives some statistics and rules regarding its performance, with his usual care and precision, but nothing more.

Dr. Sayre, of New York City, gives several examples of its successful performance.

Of American and European statistics it is extremely difficult to cull the civil from the military and hospital cases, the records of one getting mixed with those of another. But of all the records of civil cases which I can collect, the mortality is about six per cent, while of military and hospital cases the mortality is twenty per cent.

In nearly all cases when complete excision of the ankle joint is required, there is no other alternative than Syme's operation, or amputation of the leg.

In the American Journal of Medical Science for April, 1868, Dr. Drinton gives one hundred and sixty-eight cases of amputation of the leg, which are both American and foreign cases. One hundred and eleven recovered, and fifty-three died, giving a mortality of about thirty-two and one-half per cent.

Of the two hundred and eleven cases given by the Surgeon General of the United States army, one hundred and six died, or about fifty per cent.

From all sources in civil practice the lowest mortality is twenty-six per cent, whereas, in excision of the same class it is six per cent—a gain of twenty per cent. Syme's amputation, under *favorable* circumstances, gives a mortality of eight per cent.

It will thus be seen that under all circumstances, whether civil, military, or in general hospital practice, taking human *life* into consideration, the percentage is greatly in favor of excision; and with this gain we avoid the mutilation, by

an amputation, and restore to usefulness, and with scarcely any deformity, one of the most useful portions of the human body. The destruction of so little nervous and muscular tissue as compared with amputation, renders it extremely safe, while the use of Esmarch's apparatus causes it, if necessary, to be almost bloodless.

During the last few years I have excised eight ankle joints. Five were complete excisions, and three incomplete. Seven were the result of compound fracture of the tibia and fibula, in the region of the ankle joint, and one a strumous case. In no case did the constitutional disturbance reach that extent it does in amputation of the leg, or in Syme's amputation; and all the cases upon which I have operated recovered with good and useful limbs, and with scarcely any lameness.

Appended is a list of the cases and their place of residence, as far as I now know, and they can be seen by any member of the society who desires to call and examine them.

Thomas Stevens, aged forty; foreman stable, near Wells, Fargo & Co., at Virginia City. I was assisted in the operation by Dr. L. C. Lane, of this city, at the Russ House. Two inches of the tibia and fibula were removed, also the astragalus entire. He recovered rapidly, with little shortening, and without anchylosis.

John Kennedy, merchant, aged thirty-five years; residence, 628 Ellis street. Excised about one inch of the tibia and about one half of the astragalus. Operation performed at his residence. Made an excellent recovery without anchylosis, and no perceptible lameness.

Walter O. T. Smith, aged thirty-two years; foreman Steam Fire Engine Company No. 6; residence, 916 Pierce street. The operation was performed at his residence. I was assisted by Dr. C. G. Kenyon, and removed about two inches of the tibia and fibula, also the entire astragalus. Recovered rapidly, with anchylosis, but a good and strong leg.

William Kicley, a strumous subject, aged fourteen years.

I excised about one inch of the tibia and fibula, completely removed the astragalus, a portion of the *os calcis*, and entire scaphoid bone. Recovered slowly, but now walks with little lameness. The operation was performed in Saint Mary's Hospital. Present residence, corner Welch and Zoe streets.

Alpous A. Talbot, milkman, aged thirty years. Excised about three inches of the tibia, fibula, and entire astragalus; assisted by Dr. J. D. Whitney. The bone reproduced, so that there is but little shortening, and good motion in the joint. Present residence, No. 470 Tehama street.

Mathew Smith, aged forty-five years; native of Ireland; teamster. Operation performed at St. Mary's Hospital. Excised two inches of the tibia and fibula; removed the astragalus completely. Made a rapid recovery, with little shortening. Resides at Timbuctoo, Yuba County.

Henry B. Argall, aged 27 years; native of England. Both legs were broken by falling down a mining shaft. Operation performed at St. Mary's Hospital, July 30th, 1877. Removed articulating surface of tibia, and entire astragalus; also, a large amount of necrosed bone from the other leg. I was assisted by Dr. A. J. Bowie in this operation. The patient made a rapid recovery, and left the hospital well, October 20th, 1877. He could then walk a little without the aid of cane or crutches. Believe his present residence is at Virginia City.

John Mahony, aged sixteen years; injury, result of compound fracture. Excised about two inches of fibula, and a portion of astragalus. Nearly all the bone reproduced, and he made a rapid recovery. Was assisted in this operation by Dr. C. G. Kenyon. The patient at present resides at Sutter Creek, Amador County.

The mode of operation I practice differs little from that laid down by surgical writers generally. Whenever Esmarch's bandage can be applied with propriety, I use it. I make the incisions along the center of the tibia and fibula, then curving in a semi-lunar line parallel to the curve of the leg and foot. I avoid a division of the tendons of

the peroneii, and tibialis anticus muscles. In dissecting beneath the flexor and extensor tendons, great care must be taken to avoid the anterior and posterior tibial arteries. The periosteum should be carefully separated from the bone with a chisel or dull instrument of some kind, and care should be taken to preserve every portion of it intact. It is better to remove either bone of the leg, as the case may require, with a chain or narrow bladed saw, avoiding all violence, such as dislocating, twisting, and wrenching, as it invariably leads to increased inflammation of surrounding tissues, and consequently surgical fever. The astragalus can be sliced away with a chisel, or removed bodily, by dissection. Any bony structure having a tendency to caries should be carefully scraped away. The extreme angles of the wound, on either side, should be brought together by sutures, and the center lightly plugged with lint which has been saturated with a solution containing grs. vi of carbolic acid to 1 oz. of glycerine. The limb should then be placed upon a splint with extreme care, and a view to permanent position, it being important that the dressing should be accomplished without the slightest disturbance of the relative position of the foot and leg, as such motion is liable to excite inflammation, septicemia, pyemia, etc.

Each individual case may require a different kind of appliance for the retention of the foot in position. A light wooden splint extending from the toes along the plantar surface of the foot and back part of the leg, well padded, and retained in position by adhesive straps, is a good appliance for general use, a small trap under the heel being necessary to repad and keep it from being injured by pressure while the adhesive straps keep up extension, and counter extension, and allows the dressing of the wound as often as required without disturbance; also enabling the patient to lie on either side.

If care be used in the general management of the operation, and the proper adjustment of the leg and foot, it is astonishing how little constitutional disturbance is set up, and how rapidly the bone is reproduced; patients often

sitting up in bed one week after the operation, and going around on crutches in four weeks.

I always encourage the patient to sit up and get out of bed as soon as the condition of the parts will admit of it, as they improve more rapidly thereby.

Nearly all treatment is conducted upon the general rules of surgical practice, with this addition: I invariably retain a seton through the center of the articulation, until the patient can stand quite strong upon the foot. This seton is composed of braided oakum, saturated in the glycerine preparation before spoken of. It is drawn through daily, the soiled portion being cut off, and gradually reduced in size from time to time, until at the period of its discontinuance it is a mere thread.

It is desirable to avoid complete anchylosis, and obtain, if possible, a little motion which will in time become quite extensive, and with the aid of light steel appliances on either side, to support and protect the joint from injury, it becomes wonderfully strong and useful in a few months.

MEDULLARY SARCOMA OF KNEE JOINT.

AMPUTATION OF THIGH, AND DEATH SEVENTEEN DAYS AFTER FROM SECONDARY DISEASE OF THE LIVER.

REPORTED BY E. H. WOOLSEY, M. D., OF OAKLAND.

Wm. C———, aged 19½ years, occupation book-keeper, fell from a horse in the Spring of 1874, and strained his left knee. The injury seemed trivial, and was forgotten until the Autumn of that year, when a blow from a base ball bat was received on the same knee. For several months thereafter the patient suffered some pain and tenderness after violent exercise, and in the Summer of 1875 observed a slight swelling at inside of joint, and felt some inconvenience in walking. The tenderness, swelling, and inconvenience gradually increased, and in the Summer of 1876 he left Nevada, where he had been employed, and went to Salt Lake City, where he consulted a surgeon, who doubtless regarded the disease as malignant, as he expressed an unfavorable prognosis, and recommended amputation.

In the early part of 1877 he came to California, and settled in Oakland. At that time the knee was considerably swollen, tender, and painful, and a crutch became necessary. Soon after his arrival he consulted a physician of Oakland, who pronounced the affection an inflammation of the knee joint,* prescribed rest and alteratives, and put up the limb in a plaster of paris splint, which was worn about six weeks. Then a course of blistering was instituted, and the tumor was persistently irritated for about a fortnight,

* The history of this case was furnished by the patient and his mother.

when the patient, revolting, employed a "magnetic healer," whose treatment was more gentle, if not more scientific. The "last doctor" treated the case about three weeks, during which a small black excrescence appeared on the most prominent part of the tumor, and at the site of the last blister.

The tumor and the fungoid excrescence continued to enlarge, and on the 23d of September my opinion was sought. The patient lay in bed, to which he had been confined for several days, and was suffering greatly. The knee was swollen to about two and a half times its normal size, the bulk of the tumor at the inside. The distended skin was dark and shiny. At the upper part of the tumor, the ramifications of the superficial veins were marked, and at the lower there was a gangrenous, putrid, fungoid mass, protuberant about one and a half inches, about the size of a silver dollar, and which, when pricked with a pin, bled profusely. The tumor had an elastic feel, and, although the patient had no remission from pain, except when under the influence of anodynes, it could yet be handled pretty freely without augmenting his sufferings.

The inguinal glands of both sides—particularly those of the lower group of left side—were much swollen, and the patient was anemic. Without at that time knowing anything of the *history* of the case, I pronounced the disease to be malignant, and gave an unfavorable prognosis.

Subsequently, on applying the stethoscope over the upper part of the tumor, a slight *bruit* was detected, which, but for the clinical picture then before me, might for a time have misled.

The tumor was explored, by aspirating a few drops from the center, which to the eye had the appearance of blood, but, upon microscopic examination, were found to contain, beside blood corpuscles, a great number of small, amorphous, glistening masses, and a few granular nucleated cells, rather larger than blood globules, from which, alone, I should have been inclined to regard the disease as sarcomatous.

I advised amputation, as the only means by which relief could be obtained, and, although it was explained to the mother that secondary disease would sooner or later destroy her son, and to the patient himself that the benefit to be derived from amputation might not be of long duration, they were both, to my surprise, glad to avail themselves of anything which promised even *temporary* relief.

After some preparation, and on the 9th of October, assisted by Drs. Cary and Rheil, I amputated the thigh, well above the outline of the growth.

The stump healed with remarkable rapidity, and, except in the track of the ligatures, by first intention. The suppuration was very slight. The ligatures came away on the eighth (8th) day, and the wound granulated so quickly and well, that on the twelfth (12th) day union was perfect throughout, the stump was firm, and was moved frequently and freely by the patient, who sat up and turned over in bed without the slightest inconvenience.

The constitutional disturbance following the operation was extremely slight, and did not last more than 36 hours.

From the second day up to within two days of death, which occurred on the 26th of October (17 days after the operation), the patient was almost entirely free from pain, slept and ate well, improved in flesh, read and conversed freely, enjoyed a pint of porter and two or three cigars daily, and did not take any medicine.

The termination was remarkable. About forty-eight hours before death the patient was seized with vomiting, which recurred about every three hours during the day. The attacks were brief and peculiar, lasting only a few seconds, and consisting merely in eructations of bile, without any retching or apparent effort.

The attacks—always of the same character—gradually increased in frequency, and during the last hours of life, occurred about every five minutes. I tried a great number of remedies for vomiting, and prescribed quinine and brandy to combat the exhaustion; but everything taken into the stomach was rejected, and with it a copious discharge of

bile. Finally, after a rather prolonged attack, the patient sank back and died from syncope. The quantity of bile ejected during the last twenty-four hours, was not less than two (2) quarts.

[The knee joint with tumor laid open was exhibited.] The history of this case is, I think, suggestive of the disease having commenced at the bone. We find that the periosteum and a large portion of the head of tibia were destroyed; and moreover, an immediate communication between the diseased bone and the fungoid excrescence, which may be regarded as the sphere of greatest morbid activity during the progress of the disease.

Again, the appearance is somewhat suggestive of the disease having originated in the periosteum, because it is observed that the morbid process involved all the periosteum within reach, even that on the inner condyle of the femur, while a portion of the cancellous tissue and all of the medullary portion of the head of the tibia, remained unscathed. And just here there is probably some connection with the injury occasioned by the "ball bat," to which the disease has been referred, and from which the periosteum suffered some interference with its nutrition, as it will be remembered that pain, tenderness, and inconvenience date back to the accident referred to, and existed for a long time prior to the occurrence of swelling; and it will also be noticed that there does not appear to have been any expansion of the bone itself.

Later on, however, the disease appears to have involved most of the tissues about the joint, principally those at the inner side, and quite naturally, on account of their greater vascularity.

The several changes observed were evidently occasioned by an infiltration into the tissues of small round cells—which, on the one hand, differ materially from blood corpuscles, and the histological elements of the part, and on the other, resemble those commonly seen in alveolar sarcoma—for they are to be found everywhere among and in the

interspaces of the tissues of the knee, the involved tissues having been for the most part replaced by them.

Accompanying these cells—which are granular, some of them presenting bright nuclei—are numerous amorphous masses of a waxy luster (varying in size, as seen under a tenth objective, from a point to an eighth of an inch), a few fine fibrils, and occasionally a shred of connective tissue.

The large, cheesy-looking masses which occupy clefts in the connective tissues, and which, when regarded singly, remind one of cysts, though composed chiefly of the small round granular cells, contain an abundance of the broken lustrous material alluded to.

No new osseous formation or material was discovered, but an incision into the upper and denser part of the growth, yielded a gritty sensation.

Both the clinical history and microscopical appearance render it quite certain that we have here a specimen of *alveolar* or *medullary sarcoma*, a tumor, which has also been designated soft cancer, sarcoma-carcinomatodes, encephaloid, and fungus-hæmatodes, and preferably, perhaps, by the latter term, as it includes the clinical picture of the disease, which, once seen, can never be mistaken.

The points to which I especially desire to call your attention, are:

First—The probable development of the disease from an injury.

Second—The importance of prompt recognition of this extremely malignant and rapidly growing tumor, that systemic infection may be avoided by the early removal of the affected part.

Third—The very great impropriety of employing blisters and counter-irritants in such cases, as they but anticipate and hasten the natural progress of the disease.

Fourth—The very rapid repair of the tissues of the stump, and the comparative immunity of patient from inflammatory disturbance.

Fifth—The era of perfect relief from pain gained by amputation.

Sixth—The gradual and entire subsidence of swelling of the inguinal glands, within nine days after the operation, which fact I forgot to mention; and,

Seventh—The rapid and probable occurrence of secondary cancer of the liver, which, acting as an excitant on the biliary secretion, stimulated such a copious flow of bile into the duodenum that the patient became exhausted in his efforts to eject it.

And now, in conclusion, permit me to say, that while I have no disposition to deny the probable fact, that the life of my patient was abbreviated by surgical interference, believing as I do, that the short respite secured by such interference was infinitely better than an otherwise inevitable prolongation of suffering, I must yet admit, that at the time of the operation, I did not estimate the danger of premature infection, which I am now convinced should, under similar circumstances, always be feared.

The mode of production of secondary cancer, following amputation of the lower extremity, or the idea of direct infection, *i. e.*, infection by the shortest possible route, though hinted at by pathologists, does not appear to have occupied the attention of surgical writers.

In the case under consideration, the location in the lymphatic glands of the only secondary affection which preceded the amputation, together with the clinical data, render it probable that during the natural progress of the disease, the regular course of the lymph streams was not materially interfered with; and moreover, that the *materies morbi* generated at the knee, was generally eliminated, except that arrested and stored up in the lymphatic depots, while en route to the thoracic duct.

But afterward, on account of increased activity of the lymph stream, or augmentation in the quantity of lymph, and consequent increase of upward pressure, incident to a disturbance of pre-existing relations conditioned by the amputation, it is probable that the current of lymph from below, loaded, as it must have been, with infectious material from the swollen glands, upon arriving at the outlets of

the lymphatics from the liver, and finding less resistance in that direction, entered these vessels, reversing the currents therein, and thus flooded the liver with disease; for it is certain, that the accumulation in the inguinal glands was borne quickly away after the operation; and it is, judging from the symptoms of the case, also certain, that the secondary affection of the liver was neither preceded nor accompanied by any corresponding disturbance in other organs of the body.

OPERATION FOR CLEFT OF THE HARD-PALATE.

REPORTED BY E. H. WOOLSEY, M. D., OF OAKLAND.

Mrs. ———, forty-six years of age, had nasal catarrh (*specific*) in the Winter of 1875–6. The septum-nasi and the inferior and middle turbinated bones were destroyed. The floor of the nasal cavity was denuded of periosteum, and a portion thereof entirely destroyed, leaving an oro-nasal aperture a little more than one half inch in diameter. The patient was treated through the first quarter of 1876, and recovered perfectly, and, but for the cleft, satisfactorily.

The early history of this case, of which the above is a synopsis, will be found in the published transactions of this society for 1875–6.

A vulcanized rubber obturator was devised, which answered an excellent purpose, but as it rested against and was supported *in situ* by the teeth, and as the latter began to exhibit signs of decay, the patient naturally began to fear that the time was fast approaching when the teeth would disappear, and with them the only support for the obturator, without which she could neither speak, nor satisfactorily eat or drink, and appealed to me for surgical relief. At first I hesitated, and explained to her the great difficulties of the operation, and the general protest of surgical authorities against operating in such cases; but finally, after repeated appeals, and after the lapse of more than a year, during which there had been no outbreak of the disease, and after considering all the circumstances—the intolerable inconvenience and suffering foreshadowed by the decay of the teeth, the inestimable advantages which would accrue from a closure of the cleft, and the disposition of the patient

to submit to every surgical requirement—I consented to operate, and did so on the 23d of November last, ably assisted by Dr. Babcock. The operation (Langenbeck's) was troublesome and tedious, requiring the greatest delicacy of manipulation, and nearly two hours for its completion.

The first step—the paring of the margin of the cleft and the making of the lateral incisions—was easy enough; but the next—the separation of the muco-periosteal membrane from the bone—was exceedingly difficult. The instruments used, though the best I could procure, were ill-adapted for the work, having been designed for a somewhat different and far easier operation, viz: that for *congenital* cleft. The muco-periosteum, thin enough in young, healthy subjects, had here been attenuated by disease, and to thoroughly liberate, without wounding or mutilating it—a necessary preliminary to success—was no small task.* After working industriously, however, for about an hour, the membrane included within the lateral incisions was separated, and dropped down—suspended by its attachments anteriorly and posteriorly—so that the lateral edges of the central fissure came into easy and perfect apposition. The next and last step of the operation consisted in the introduction of three fine silken sutures, and was accomplished by Avery's method. The wound was then thoroughly cleansed above and below by means of a gentle *douche* of a weak solution of carbolate of iodine.† A piece of soft sponge was inserted into the nasal cavity to absorb the secretions which, on account of a depression in the nasal floor immediately surrounding the bony aperture, would otherwise

* Hemorrhage, which was very free, was readily controlled, from time to time, by pressing pieces of ice against the bleeding tissues.

† The formula for the solution used, is carbolic acid and tincture of iodine, each, one drachm; water, twelve ounces. The iodine is decolorized by the acid, which fact I discovered by accident, and the solution is clear, and in my opinion, the best surgical wash in use. In cases where there is sloughing, or much suppuration, I use a stronger solution.

have flowed down upon the wound, and thus have prevented the wished-for union. The patient was put to bed and kept quiet for several days, during which she was neither permitted to speak or to partake of solid food. The wound was kept scrupulously clean by means of the antiseptic solution, and frequent replacement of the sponge used in the nose.

At the outset, union seemed to be assured, and on the fourth day the wound was found to be air and water tight, but on the following day (sutures removed on fifth day) a minute ulcer was observed at site of central suture. On the sixth day, the wound leaked a little, and on the seventh there was a slight separation. The opening continued to enlarge for several days, and finally reached a diameter of a little more than one eighth of an inch, but has of late been contracting.

During the first week after the operation, an ulcer appeared at the anterior part of the left lateral wound, and for three or four days communication with the nose at that point seemed inevitable, but such accident was averted, granulation followed, and in less than four weeks from the date of the operation the patient was discharged quite sound, and very much improved. The membrane, which was shifted by the operation beneath the old aperture, has increased very considerably in thickness, and has become so exceeding firm and rigid as to suggest a reproduction of osseous tissue from the upper or periosteal layer. The repair has been so very satisfactory that I confidently hope, in a short time, to close the remaining breach of continuity.

By comparing the two casts* a marked improvement is observed. The existing aperture is by actual measurement only one thirteenth the size of the former, and so small that the patient, who, though still preferring to wear the obturator at meal times, on account of some inconvenience in drinking, can yet, without that instrument, do that which

* Two plaster casts were exhibited showing the condition of the hard-palate before and after the operation.

she could not prior to the operation, viz: speak and satis*factorily* eat.

Thus it has been demonstrated that operations for the closure of large clefts of the hard-palate resulting from constitutional disease, are admissible, and may be undertaken with some prospect of success.

When, therefore, it is considered how frequently the integrity of the hard-palate is involved by disease, and especially in this country, by nasal catarrh, and that a person afflicted with a large oro-nasal aperture is prevented from wearing a suction plate of teeth, and in the absence of natural teeth, a useful obturator, without which he can neither speak nor conveniently eat or drink, the advantage to be derived from *uranoplasty* becomes obvious.

THE VALUE OF THE OPHTHALMOSCOPE TO THE GENERAL PRACTITIONER.

BY SARA E. BROWN, M. D.

The history of the ophthalmoscope has been so often related, and the instrument so accurately described, that it seems needless to say more; still, the frequent modifications, and rapid advance in scientific investigations in this direction, are continually developing new modes and results verifying previous conjectures, and clearing up much that was at first obscure, thus giving the thoughtful observer ample opportunity to add to the record.

It is more than twenty years since Cummings suggested the idea of the ophthalmoscope, but the honor of inventing the instrument belongs to Helmholtz, who published a description of it in 1851. Two years later Spencer Wells, in an essay published in the London Medical Times, September 10th, 1853, called the attention of scientific men in England to the value of the ophthalmoscope in diseases of the eye. Grafe and Sichel were the first to adopt this form of examination, and in 1860 a paper from Von Grafe excited a general interest in the subject, and from that to the present time many eminent men, both in Europe and this country, have devoted their time and talent to the study of disease with the ophthalmoscope. The first instrument introduced into this country was sent to Dr. Dix of Boston, by Sichel of Paris. It is a small and rather clumsy combination of three reflecting plates of glass, placed one upon the other, forming the longest side of a right-angled triangle. The other sides of this hollow prism are of metal, and lined with black velvet to absorb the light. The shortest side of

the prism is attached to the base of the instrument, in such a manner as to allow of its turning freely on its optical axis, and has also an opening corresponding to this axis. To the framework of this prismatic box, behind the opening, is connected a modification contrived by Rekoss, consisting of two revolving disks pierced with several holes, into which are fitted a series of concave lenses. By turning the disks, one after another of these lenses can be brought into the optical axis of the instrument, and by reflecting light upon the eye, and looking through them and the plates of glass, the patient's eye may be observed.

Helmholtz named his eye mirror, ophthalmoscope, and presented it to the surgeons for their favor. They adopted it eagerly, and much skill and ingenuity has been employed since then in improving and modifying this interesting little instrument.

The study of the reflection and concentration of light received a great impetus, and many principles and theories were brought to bear upon its mechanism, adding much to the science of optics.

The variety of instruments has now become confusing, embarrassing rather than helping the student. Zander gives detailed descriptions of more than thirty different ones, besides several binocular, and as many aut-ophthalmoscopes, and now probably a large number more could be added to the list.

The most perfect and elegant ophthalmoscope now in use is that of Dr. Edward G. Loring, of New York, the chief modification of which consists in a detachable cylinder in place of the fixed one of Rekoss. There are, besides the frame, three cylinders or disks, having places for eight glasses, thus forming a series of glasses extending in focal value from convex 1–48, and concave 6 to 48. One disk is entirely made up of convex lenses—sufficient for all ordinary degress of hypermetropia—one opening left vacant to represent emmetropia, and for examination by the direct image. Another contains the concaves of moderate focal power for myopia, and the third has the stronger numbers

of both concave and convex. These high numbers are used to determine the excavations or elevations of the optic nerve, the presence of tumors, membranes in the vitreous, detachment of the retina, etc. The stronger convex magnify the opacities of the cornea and lens to such a degree that they may be easily described. The mirror is slightly concave, and of 7″ focal distance, and is ground exceedingly thin, and all the surrounding brass is beveled away to the thinnest edge, so the mirror can be detached, and the instrument used, an optometer, the patient revolving the disk until the good table glass is found. An extra mirror can be obtained in London smoke glass, which gives so weak an illumination that the patient will not be aware of the light. Another can be had for use in determining astigmatism, while employing the instrument as an optometer. A separate biconvex lens of large size, and of 2½″ focal length, completes the instrument. The whole is perfectly accurate, of the best material, of exquisite finish and workmanship, strong, light, and durable, conveniently arranged in a neat case about the size of a common portemonnaie, that may be easily carried in the pocket.

In order to use this beautiful instrument for the study of the fundus of the eye, it is necessary to have the room darkened, and a clear steady flame from either a gas burner or common lamp, though a single candle flame can be made to serve if no other can be obtained. It is possible to use even the rays of the sun, admitted through a narrow slit in the shutter, but this is likely to dazzle, or may be obscured by a passing cloud. For using gas an Argand burner is best, either attached to a bracket with a universal joint, or to a standard with a flexible tube, so that it may be moved about on the table. If the common kerosene lamp is used it must be so trimmed that the flame will be round and full, not long and thin. It is well to protect the flame by a pale blue glass chimney, which also excludes the yellow rays of light. A small movable screen or thin shade, which can be firmly fastened to the lamp or burner, and having an opening on one side, is very desirable and convenient, but

not a necessity. The candle flame will give only a faint illumination, and is only desirable when the retina is over sensitive. The light should be at the side, and a little behind the patient, so that the cornea may be in shadow, and close to the shoulder of the person, on the right or left side, according as the right or left eye is to be examined. The observer and the observed must be seated directly opposite each other, within convenient distance, and at such a height that their eyes and the light may be on the same level. The patient should be directed to look at some point or object in the distance, behind and a little to one side of the observer. If the left eye is under observation, let the patient look over the left shoulder of the examiner—if the right eye, over the right. The gaze should be fixed as steadily as possible on the object, and the head held perfectly still, and when directed to move the eyes not to move the head also. The position of the eye of the patient will be most readily assisted by directing him to look at the top of the observer's ear, and then to note some object at a distance in the same range. As the entrance of the optic nerve is a little to the inside of the median line of the eye, it is important to thus turn the eye inward in order to bring the nerve disc into the optical axis.

The eyes of children and young persons can usually be examined without artificial dilatation of the pupil, unless a very minute examination is desired, but the pupils of those in middle life, and the aged, are generally so small, and contract so quickly when the light is thrown upon them, that the pupil should be dilated by atropine, three grains to the ounce of distilled water; this will give dilatation in thirty to forty minutes, the effect lasting for eighteen to twenty-four hours.

Lateral illumination is accomplished by using a double convex lens, throwing the light over the anterior portion of the iris, and through the anterior chamber, thus being able to detect opacities, adhesions of the iris, foreign bodies, and cataract. A very easy, ready, and useful means of examination, and much used.

The ophthalmic study of the eyes of the dog, cat, and horse, is curious and interesting. Albrott, in his book, tells of a very intelligent veterinary surgeon in England who used the ophthalmoscope in studying the nervous diseases of animals, particularly the horse, with useful results.

After illuminating the fundus of a healthy normal eye, a red or white light will be reflected; white, if from the optic nerve disk; the red color is due to the return of light from the inner surface of the sclerotic, through the highly vascular choroid, the exact tint depending upon the relative amount of blood and pigment. In eyes where the pigment is deposited in large quantity, there will be a dark, dull, red tint, and is usual in persons of dark complexion and black hair; and on the contrary, in those of light complexion and hair, the amount of pigment will be small, and the sclerotic reflect more light, causing the fundus to appear of a much lighter tint. The first object to be sought for, is the optic disk, usually found circular in form, though often slightly oval, sometimes markedly so, in myopic eyes, and rarely in the form of an elipse. In size it varies in different individuals, and appears somewhat larger or smaller, according to the power of the lens used for examination. With an ordinary 2½″ lens it would seem about the size of the end of a common lead pencil, or 7 millemetres; with a 4″ lens, as large as a three-cent piece, or 1 centimetre. The color of the nerve disk depends in some degree upon the age and habits of the person, and may be a bluish, yellowish, or gray tint; but the minute arterial twigs which nourish the nerve surface, commonly determine its color to be a delicate pink tint, which may seem of darker or lighter hue by contrast with the color of the surrounding fundus. When the disk is considerably magnified, the limits of the nerve proper may be seen as a fine grayish line, surrounded by a dense, white ring, two or three lines in width, and encircling this, still another ring intermediate in width. The first is the edge of the nerve sheath; the second, the opening in the sclerotic; while the third is that of the choroid.

Still outside of this series of rings, and now and then en-

croaching on them, is often found a band of pigment. This is perfectly physiological, but is frequently mistaken for a pathological change. It may be only a line, or in the form of a crescent, or a spot, and even lie in patches at irregular intervals; may extend around the disk, or but half or a third way, always contrasting sharply with the white disk. The amount of pigment always being greater near the nerve entrance, the gradual shading off from the dark ring to the rich pink of the periphery of the fundus is very beautiful.

The blood vessels (arteria et vena centralis retinæ) generally pierce the disk at the center, or a little to the inner side, and usually at the same point, though they are sometimes found at different openings. I have observed one case only where in the left eye the artery and vein entered at different points—the artery near the margin of the inner side and the vein in the center of the disk—leaving a considerable space of white nerve surface perceptible between them. There was slight strabismus of the right eye, but the vessels were normal. The arteries are distinguished from the veins by being smaller and of lighter color, and usually pursuing a straighter course to the periphery of the fundus; they also lie above the veins, and often cross and recross them. After crossing the nerve plane they bifurcate and pass upwards and downwards, each artery being attended by two veins. These divide into many branches, and are distributed in all directions over the retina, arching over the region of the macula lutea, the point of keenest vision, where there are no large vessels. The very interesting phenomenon of venous pulsation is often visible in the healthy eye, and is best seen at the point where the vein crosses the margin of the disk. In three cases that I have seen, the pulse was so marked and regular that it might be counted, and showing as plainly as the arterial pulse of the neck and wrist, though not as strong. The theory given of this is, that it is caused by the compression of the vitreous humor or fluid by the dilatation of the arteries, which in its

turn reacts and compresses the veins. The flow of the arterial blood is of course from the center to the periphery, while that of the veins is the reverse, the dilatation and contraction being in accordance.

When the venous pulse is very strongly marked, it has a pathological significance, as denoting the state of circulation in the brain, and when accompanied by arterial pulsation, as is declared by some to be the case, it indicates serious cerebral disturbance.

Venous pulsation may be produced artificially by slight steady pressure on the eyeball, thus raising the tension of the vitreous. Albrott, in his new book, doubts the arterial pulse, and says: "I believe the arterial pulse is never visible under any circumstances, natural or artificial;" but probably he refers to the eye in a natural, healthy state.

The retina (tunica nervea) is a perfectly transparent membrane, or as some authors term it, "a translucent continuation of the optic nerve." In dark complexioned persons and under favorable circumstances, it may be seen as a gray film overlying the choroid. It is composed of layers, the most interesting of which is the external or columnar layer, comprising the rods and cones connected with the terminations of the nerve filaments. The retina decreases in thickness from the nerve disk to the periphery of the fundus, and ends in a finely indented border at the outer edge of the ciliary processes. It is separated from the vitreous body by a thin glassy membrane called the hyaloid, or limiting membrane.

The choroid, or vascular tunic, lies between the retina and sclerotic, connected to both by an exceedingly fine cellular tissue. The stroma of the choroid contains a variable amount of pigment cells, filling in the close network of the numerous blood vessels, and, in many cases, where the pigment is in heavy masses, the smaller choroidal vessels are entirely covered over, while in light eyes the pigment deposit being lighter in quantity, the choroidal vessels of even small size may be easily traced. The brightness of the red tint of the fundus is determined by the distribution

of the pigment, and varies from a clear yellowish red to a deep brownish red or rust color. The fine mosaic of the epithelium of the choroid gives that beautiful stippled effect so noticeable in the fundus. The arteries and veins are marked by their difference in size and arrangement, but would not be detected by their color. The smaller veins, in a peculiar manner, curve round from all directions, and form a series of whorls—a larger vein being their center—that unites with one still larger, and that with still another larger, which conveys the blood to the ophthalmic vein. The arteries take a more direct course, and ramify in all directions, and compose a layer of network beneath the veins and separate from them.

The sclerotic or outer coat of the eye serves to give and hold it in shape. It is a dense, white, opaque, and nearly inelastic membrane, the posterior portion being much thicker than the anterior or part nearest the cornea. It is pierced near the center by the optic nerve; the fibers of the nerve sheath and the membranous tissue which separates the bundles of nerve fibers, blending with it at the margin, and giving the surface of the disk a minutely dotted gray appearance, and round this lamina cribrosa the nerves and blood vessels pass in to supply the inner parts of the eyeball.

All diseases of the eye are likely to come under the observation of the general practitioner; those especially that are connected with other diseases, of which amblyopia is but one of many symptoms, as in Bright's disease, apoplexy, many cerebral diseases, and that form of glaucoma which sometimes attends erysipelas of the face, the atrophy of the optic nerve, that often accompanies or follows typhoid and scarlet fevers. All these, and many others, come first under the care of the family physician. Away from our cities and large towns there are no specialists to call in consultation, and the practitioner, if unfamiliar or wholly unacquainted with the use of the ophthalmoscope, must often send the patient on a long, tiresome, and expensive journey to obtain the advice and help he had a right to expect from his family physician; or, if he is not honest enough to say he does

not know how to treat the eye, and ignorantly treats an organ so delicate, the result may be either loss of sight to the patient, and loss of confidence to the physician, or such a course may cause a fatal delay, when, had the patient had skilled and proper care in the early stage of the disease, or no treatment at all, sight might have been restored.

Glaucoma, that terrible acute form of disease, coming on as it does, so suddenly that one may retire at night with good sight, and in the morning be unable to distinguish light—intense pain of both eye and head, the eye hard as marble, the pupil dilated and immovable—all these are symptons full of meaning to even the unassisted eye of an experienced physician; but it will not do to perform iridectomy without further assurance of the diagnosis. It may be only a severe attack of neuralgia, but with the ophthalmoscope we can have that surety. The examination shows an excavated disk, a greenish glow or color, the arteries small, and containing but little blood, while the veins are larger than normal, turgid, engorged with dark, almost black-looking blood, or tortuous, and sometimes even beaded in appearance. The blood vessels seem narrowed to a point or beak, and hook over the edge of the cupped disk, disappearing below it perhaps to appear again only in part. The sclerotic and choroidal rings show as a broad belt of yellowish hue, or a dirty white color, and the whole fundus is deeply red, and gives the impression of its being inflamed. This degree of the disease being found, instillation of atropine will not avail, but only aggravate the trouble. No remedy will relieve, and the only and best thing to be done is the operation for iridectomy, and that the sooner the better for the comfort of the patient and the chance for an ultimate restoration of sight.

The great value of the ophthalmoscope is also undeniable in that much dreaded form of nephritis, Bright's disease, recognized in the eye as retinitis albuminuria—the changes there being so characteristic and peculiar that without examining the urine it might be confidently determined, and taken with the other well known symptoms, is conclu-

sive. In the first stage there is hyperæmia of the disk and retina, dilatation, and darker color of the veins, while the arteries appear normal or but slightly shrunken. A blue or grayish haze seems to envelop the disk, making the outline indistinct, and extending over the surrounding portion of the retina. The sclerotic and choroidal rings are nearly invisible, and the disk seems blended with the retina without the line of demarcation. There may be ecchymosed spots of blood, or even small patches, lying near the walls of the veins, and the smaller vessels not usually visible become so distended as to be plainly seen. Both eyes are generally affected. As the disease advances certain yellowish white spots appear with numerous extravasations of blood in the layers of the retina, and central vision is obscured. The arteries are now decidedly diminished in size, and show a white line. The veins are darker, irregularly dilated, and more tortuous, while the veinlets assume a spiral course. The disk is infiltrated and swollen, and the hemorrhagic, as well as white patches, center around it, sometimes encroaching upon it. Whitish streaks radiate in the external layer of the retina, between the bundles of nerve fibers, probably the tracks of blood extravasated in the earlier hyperæmia, and dots of pigment are scattered here and there.

Still later all these changes remain in an aggregated form, the exudation has become still more opaque, and of a reddish, yellowish, or cream color, and the disk is wholly obscured. The arteries have dwindled to mere threads, the smaller ones are entirely obliterated, the veins, large, black, and engorged, are now and then hidden by the effusion, appearing as if cut off, or turned down into the deeper tissue, while the blood patches are large and very numerous. The white spots and patches have coalesced with the blood spots into a broad zone around the disk. Around the macula lutea the small, white, glistening spots assume a stellate arrangement, taking the yellow spot for a center, and look as if laid on with the fine point of a brush.

This peculiar arrangement of these small, bright, white

dots around the yellow spot, with the broad band of glistening white in the region of the optic disk, are the two most characteristic signs of this disease, as seen in the eye. At last there comes a decided change in the vitreous, which prevents a view of the fundus, and atrophy of the disk and retina end the scene.

In favorable cases the effusion may become absorbed, and the changes wrought in the choroid may now be studied. The pigment is found to be washed away in some places, allowing the choroidal vessels to stand out in clear relief against the white sclerotic. In other places there are reddish yellow patches edged with a heavy, irregular border of pigment cells. Again, the pigment is piled up in thick layers, forming scattered black spots of various sizes. Sometimes the inflammation has been of so long duration that sclerosis of the choroidal vessels has taken place, and show the distinctive well marked white line.

Atrophy of the optic nerve is another cause of amblyopia, and cannot be determined without the ophthalmoscope. The loss of sight may be gradual, or come on suddenly after an acute attack of cerebral disease, or it may be the result of a tumor, or an abscess in the brain or orbit.

I saw a case not long since, of a stout, healthy boy, thirteen years of age, of healthy American parents, in the country, who had, previous to my seeing him, been suffering for three weeks with what proved to be an abscess in the upper part of the orbit of his left eye. It had opened spontaneously through the upper eyelid. In a short time the inflammation subsided, the discharge ceased, and the eye looked clear and natural, but sight was gone. On examination with the ophthalmoscope, I found the optic disk of an opaque chalky whiteness, and the edge of the nerve sheath, the choroidal and sclerotic rings, were involved, and made the disk appear larger than normal. The minute arterial twigs of the nerve surface and the small branches of the retinal vessels had disappeared. The *arteria et vena retinæ centralis* were much reduced in size, and the entire retina anemic. This child had come a long distance with

his mother, at an expense the family could ill afford, only to be told that vision in that eye was entirely lost, and no remedy or operation could restore it. Had their village doctor known how to have distinguished this state of things with the ophthalmoscope, he could have saved their anxiety, journey, and expense, and told them in fifteen minutes what it took them three days to find out.

Optic neuritis, resulting in atrophy, may follow blood clot, syphilitic deposit, or a hydatid cyst, etc., and is so liable to accompany every disease or lesion of the brain, that the eminent practitioner, Albrott, declares: "It must be looked for in every case of cerebral disease, especially in cases of cerebral fever;" and also, "that the geographical relation between the optic nervules and the vessels is very curious, and unparalleled anywhere else in the human body, and that this and the further peculiarity of the structure of the optic trunk leads me to look upon it with its rich blood supply as a more important offshoot of the encephalon than any ordinary nerve would be, and more likely to offer important indications of its varying states." The several forms of optic neuritis are interesting and instructive to the ophthalmic student, and it is very desirable to be able to diagnosticate between neuritis ascendens and neuritis descendens, the neuritis of cerebral disease, and that of traumatic origin, and that produced by mechanical means. To do this requires a knowledge of the other symptoms and history of the case that a general practitioner has larger opportunity for gaining than the specialist.

The common diseases of the *choroid* are easily diagnosticated with the ophthalmoscope, most of them being of an inflammatory nature.

Last Winter I had the opportunity of studying a case of *acute choroiditis*. A young man, an entry clerk in a warehouse, twenty-three years of age, healthy, and of good habits, came to the Infirmary for advice. He stated that he was employed in writing all day by gaslight, and often a part of the evening, bending his head down continually. For some time previous he had suffered from severe frontal

headache; his eyes felt tired and ached, the sight often becoming dim for a few hours at a time. One morning, after having written late the night before, he found on waking that he could not see at all with the right eye, and with the left but very little. There was no pain—only a sense of fullness and discomfort in his eyes. In great alarm he came at once to consult the surgeons at the Eye and Ear Infirmary. His eyes looked natural outwardly; the mobility of the pupils was unimpaired, and there were no external evidences of inflammation. The ophthalmoscope revealed the trouble—there was choroidal hyperæmia, slight serous exudation in places between the choroid and retina, particularly to the inner side the disk and the retina for a few lines around it, seemed a little hazy and indistinct, but the vessels appeared normal and the retina transparent, except in the effused spots. The most marked appearance was the disturbance of the pigment, and the consequent exposure of the choroidal vessels, large and small—even the vena verticosa showing finely. Patches of pigment, or places where it was very thin, or gone altogether, of all sizes and shapes, were scattered, or rather seemed to float over the whole field of view, varying in color from the pale yellowish pink tint, where the sclerotic could almost be seen, to dark and reddish black spots, that might be either exuded blood or piled up pigment cells; and still other large yellowish spots of irregular oval form, with a deep indented border of pigment on the inner edge. There were also dots and streaks of pigment and half-absorbed blood, making up a curious and confused picture. The patient was assured that with rest and care of his eyes, his youth and good habits being in his favor, the inflammation would probably soon abate, the blood in time become absorbed, and partial or full sight be restored. In about two months this prognosis was verified.

Now and then a patient comes to the practitioner complaining of night-blindness, and that he cannot see well in the twilight, and is quite blind later in the evening. Both eyes are usually affected, but no external changes appear, except

in some cases the pupil is small and anterior chamber shallow. With the ophthalmoscope we discover peculiar large, black masses of pigment lying near the retinal vessels, and following their course as narrow black lines, or as spots with two or three prongs or prolongations radiating from them, resembling the bone corpuscles. At the divisions of the vessels the pigment fills in the angles and courses along their walls for a few lines, giving a stellate appearance. The vessels become very much contracted, or are atrophied, and the retina, deprived of its proper supply of blood, also becomes inactive and atrophied. In some cases where atrophy of the optic nerve takes place, the vessels remain transparent, but very small.

This disease of the retina (*retinitis pigmentosa*) is frequently congenital and hereditary, though sometimes the result of inflammation. It is easily diagnosticated by the peculiar marked form of bone corpuscle pigment deposit, and is seen to commence at the periphery of the fundus, progressing more or less slowly, narrowing the field of vision, till at mature age the sight is entirely gone or reduced to the mere discerning of large objects.

Injuries of the iris and cornea are very common, and liable to occur in any village, especially among stonecutters and machinists, and need immediate attention. A case in point came not long since to the Infirmary. Peter Quinn, Irish, aged 27, stonecutter; while at work drilling was struck on the upper eyelid of the right eye with a bit of iron or stone which penetrated the cornea. There was no pain for five hours, but after that time the pain and soreness was intense, with entire loss of vision. The accident occurred at four P. M., and the next morning at ten he was under examination by oblique illumination, but even in that short time the conjunctiva was greatly inflamed, the cornea misty, and a considerable amount of pus (hypopium) in the anterior chamber. The iris was discolored and pressed back upon the lens, to the capsule of which it was

fastened by lymph; the pupil was closely contracted and immovable. On using the ophthalmoscope only a slight reflex could be obtained, but under skillful treatment he made a good recovery.

Another, a machinist, was less fortunate, a Frenchman, 19 years of age; while filing was so unlucky as to have a piece of the steel enter the cornea of his left eye, near the edge of the pupil, nicking out a bit of the iris, and lodging in the margin of the lens; there was but little apparent inflammation, and the pupil slowly dilated under atropine. The ophthalmoscope showed that the injury to the lens was of a very serious nature. At the point of the wound was seen a whitish opacity of exudation and numerous striæ, like fine black lines, radiating from the center of the lens, indicating the presence of the foreign body, and probable cataract, if not ultimate enucleation as a final result.

There are several other affections of the eye which I should like to describe—such as the detachment of the retina, a frequent cause of blindness, and the amaurosis, caused by the excessive use of tobacco or alcoholic drinks; that of lead poisoning, and also that of diabetes—but I trust enough has been said to convince the unprejudiced mind that the ophthalmoscope may be of great value in general diseases. In the class of diseases peculiar to women, the ophthalmoscope opens a large field for investigation, and may prove a valuable help in the pathology of those cerebral troubles so frequent among delicate women who are suffering from some of the various forms of uterine disease. Some degree of amblyopia is often present, and the complaint is that they do not see well, their eyes ache, and feel as if pressed out of the orbits, and tire so quickly when used for sewing or reading. A close sympathy is known to exist between the brain and uterus, and the subject is one of especial interest and importance to women physicians, and they have the largest opportunity for observing and studying the relation and connection of the two, and the high incentive of adding to gynæcological science in a direction where but little is yet known.

I have made it a point to examine the eyes in every uterine case, and had at one time under my care five cases where the retinal appearances were similar and peculiar. In three of the cases there was menorrhagia, constant headache, frequent dimness of sight, general debility; in the other two, chronic endo-metritis with profuse leucorrhœa and severe headache. In all the ophthalmic appearances were similar, varying only in degree, the disks being more or less anemic and ædematous and the retina showing a marked smoky cloud, or light gray mist around the disk, and in the intervals between the vessels. Under tonics, alteratives, and local treatment the health improved, and the smoky cloud broke up into shreds and patches, fading out at the edges and periphery, till at last, in one or two of the cases, it disappeared entirely, and the sight was restored good and strong as ever, and the headache ceased to trouble them.

The only theory I have to offer in regard to this appearance is that it may be due to a serous exudation into the granular layer of the retina; for had it been between the choroid and retina it would have produced detachment of the retina; and had it been a cloudy vitreous the entire fundus would have been more or less obscured, and the appearance of the vessels quite different; had it been into the internal layer of the retina, the vessels would have been more obscured, but the appearance was that the exudation was behind, rather than on a level with the vessels, as they seemed a little forward of the normal focus. These patients all had light eyes, in different shades of blue and gray, and were examined with the ophthalmoscope every ten or fourteen days. The media were clear, and all else was normal with the exception of the disk and retina.

Albrott says: "There are without doubt disorders of vision which appear attributable to menstrual disorders," but that he has "examined women innumerable" without discovering any such coincidences; but as other equally eminent ophthalmic surgeons do not assent to Albrott's conclusions in this matter, it may be that it is reserved for the

encouragement of some woman physician of earnest patience, keen perception, and intuitive judgment, to discover for science that which so good an observer has failed to do. It may not be saying too much to predict that within a few years every first-class physician will be expected to use the ophthalmoscope in general practice, and to know the value of what he or she may see with it, just as now, no intelligent patient is satisfied with the diagnosis of a physician who does not use the stethoscope in heart and lung diseases.

It is indeed true that it requires much time and practice to become skillful in using the ophthalmoscope; but the delight of the study and the great benefit not only in training the eye to note minute objects and slight changes, but the positive help it may often prove in an obscure or doubtful case, will amply compensate for the time and energy spent in acquiring a knowledge of its capability.

EMBRYOLOGY.

A SKETCH OF ITS DEVELOPMENT AS A SCIENCE.

BY C. ANNETTE BUCKEL, M. D.

The generation of life must always have been a fruitful subject of inquiry, but we have no record of any scientific investigations made before the time of Aristotle, the father of natural history. In his work on the history of animals, we find that he not only had a large museum, filled with rare and curious animals from all parts of the then known world, supplied through the liberality of his pupil and friend, Alexander the Great, but that he took opportunities in traveling to study the nature and habits of many in their own native haunts, undisturbed by the surroundings of an artificial life in captivity.

His observations on bees, ants, spiders, and many of the curious marine animals, correcting popular errors in regard to their development, sex, etc., prove that he not only knew what had been previously learned and taught, but that he searched in every avenue for information, and investigated, experimented, and theorized. He speaks of jelly fishes, which he called acalephæ, on account of their stinging properties; of polyps, and their increase by gemmation or budding; and he reasoned on the animal nature of sponges, though he finally classed them with plants.

In his work on generation he speaks of origin by spontaneous evolution—as mites in cheese, worms in the center of sound fruit, parasites living in other animals, etc.; of origin by gemmation or budding, and divides the higher animals into two classes—the oviparous and viviparous. He described the organs concerned in reproduction, the

functions of each, and the influence which each sex has on the offspring, but does not seem to have recognized the nature of the ovaries in the viviparous, though he described the development of the egg in the oviparous. In his account of the development of the chicken, he speaks of the "punctum saliens" as the first organ formed, so he could have known nothing of the earliest stages. Aristotle believed matter to be eternal, and endowed with a vital principle. In sexual reproduction he taught that the male furnished the animating, vitalizing principle, while the female furnished material for nutrition and growth, but he did not attempt to explain very minutely the nature of the material or the manner of its production in either sex, and we have no evidence that he ever saw a human embryo.

It was more than two thousand years before any fact of importance was added to Aristotle's records. His followers contented themselves by studying his works, and trying to explain what they could not comprehend, by endless discussions and disputes, instead of following his example—to study and investigate nature for themselves.

Not until Albert the Great, Bishop of Ratisbon, born in 1193, styled afterwards the Buffon of the Thirteenth Century, do we find any record of material progress. Albert arranged a new system of classification, placing the sponges among animals, where Aristotle had hesitated to place them, and putting man apart "as the only link between God and the earth," because "man has in himself the intelligence by which he can raise himself above the world." He believed in the immutability of species, but corrected many false views which had been handed down to his time, and seems to have been an independent thinker—a rare phenomenon in those days of priestly intrigue and intolerance—but did not add much to Aristotle's knowledge of embryology.

There are a few compositions of the middle ages called Bestiaries and Volucraries, preserved in manuscript, in the Royal Library in Paris. The following extract, translated from one of these works, written in 1208, by William, a

distinguished Norman scholar, will illustrate the kind of knowledge to be gained from them. William begins his natural history as did most of the other writers of those compositions, by a description of the lion. He says:

"The lion inhabits high mountains. When he sees himself pursued by the hunter, he effaces with his tail all traces of his steps. When he sleeps, he has his eyes open. The lioness bears her young on the ground, where they remain motionless three days. They are abandoned by her. The lion comes and breathes on them, when they are restored to life. It is thus that Jesus Christ concealed so well his coming on the earth that the demon himself did not know of it. Three days also, like the young of the lion, He was deprived of life, but God the Father caused him to go forth, and he arose gloriously."

The Bible and biology were thus reconciled by the scientists of the thirteenth century. The discovery of the new world affected the learned men of that age with the same bold spirit that thrilled all classes. Anatomists, who must be the pioneers in all biological progress, broke the superstitious bonds that had so long fettered them, obtained the repeal of laws which forbade the use of any but executed criminals for anatomical purposes, and soon raised anatomy to a high place among the sciences. Vesal, Eustachi, and Fallopia raised an enthusiasm that extended from Italy to France and England. Fabricius ab Aquapendente, called the Nestor of anatomists, a pupil of Fallopia, and Professor in Padua, was one of the most brilliant men of his time. His publications in 1600 and 1604 contained the first attempt to give the development of the chicken, mammalia, and man. It is most probable that his celebrated English pupil, Harvey, gained from him that knowledge of embryology which must have given him some interest and enjoyment during his long struggle to establish his great theory of the "circulation of the blood;" for, in 1652, only five years before his death, he published his "Investigations Over the Generation of Animals," containing special descriptions of

the development of the chicken and mammalia, but adding very little to that already made known by his illustrious master, Fabricius.

In fact, the eye of man strove in vain to penetrate the mystery shrouding the beginning of all life, until aided by that magic key, the microscope, which, as it were, opened the inner door to the temple of life. Then was disclosed the wonderful living mechanism which regulates all the functions of the organism. Men like De Graaf, Swammerdam, Leenwenhoeck, Malphigi, and others, made a brilliant series of discoveries which prepared the way for Wolff, Pander, and Von Baer, to make a firm foundation for future investigations.

Regnier de Graaf's work on the nature and function of the ovaries, his actual demonstration of the ovum of a rabbit in the Fallopian tube, his dictum, "*Omne vivum ex ovo*," were at the dawn of a new era.

Swammerdam's wonderful dissections and preparations of insects in their various stages of metamorphosis, confirming Redi's conclusions concerning the origin of all insects from eggs, thus adding to the evidence in favor of De Graaf's dictum, "*omne vivum ex ovo*," did not procure for him the favor of that distinguished physiologist. It was not until his Biblia Natura was translated into French that it received the attention it deserved. His countryman, Leenwenhoeck, by his discovery of the spermatozoa, or rather his confirmation of his student's discovery, was more fortunate in arousing the attention of the whole learned world.

The most exciting discussions were carried on over the nature and office of these little animalcules. The evolutionists on one side claimed that the future being existed perfectly formed in these germs, only so minute it could not be detected with the best microscopes, and that its development was only a process of unfolding or simple growth. On the opposite side were those who supported the theory of epigenesis, which taught that no organs existed preformed in the germ, but that they were devel-

oped in succession from the material furnished for nutrition and growth.

This discussion was carried on with great warmth, if not with personal bitterness, for thirty years, and very little progress was made by any of the disputants. In the meantime a German, Caspar Friedrick Wolff, who was living at St. Petersburg, was patiently watching the development of the embryo, and at last succeeded in tracing the alimentary canal back to its primitive condition. The problem was solved—one organ at least did not exist preformed in the germ. He then traced the kidneys back to their provisionary form, now called after him the Wolffian bodies; and then, in 1759, published his "True Theory of Generation." He was led to adopt this theory through his discovery that the whole plant, except the stem, was only a changed leaf. He reasoned that the same law might hold good in regard to animals, as so many other laws of growth were of common application. With this thought he commenced his investigations, and after long and patient watching obtained the proof of his theory so far as two organs were concerned.

His first publication being in the Russian language, remained almost unknown until 1812, when Meckel translated it into German and brought it to the notice of the scientific world. It did not gain many disciples until still later, when Pander, carrying Wolff's investigations farther by an extensive series of observations, proved his theories correct, and succeeded in impressing physiologists generally with a sense of their importance. Pander not only traced the development of the embryo from a membrane, according to Wolff's theory, but showed that this germinal membrane was composed of two layers, from each of which certain tissues were formed. Von Baer was the first to present the plan of the structure of the entire embryo with sufficient proofs to make it thoroughly established, and to Von Baer belonged the honor of first demonstrating the three layers of the germinal membrane, and the processes

by which the whole embryo is built up, so clearly as to give a firm foundation for the establishment of a new branch of science—embryology. Carl Ernst Von Baer may therefore be considered the founder of the present system of teachings in embryology, although Caspar Friedrich Wolff had long previously developed the true theory and partially proved its truth. Oken and Kieser, who published in 1806 treatises on the development of the alimentary canal from the umbilical vesicle, knew nothing of Wolff's works.

At the beginning of this century embryology enlisted the interest of the most distinguished scientific men. Oken studied the development of the vertebral column and the cranium, and was the first to show the relation of the cranial bones to the other bones of the vertebral column, a subject in which Goethe was intensely interested, who, in confirmation of his own theory, as to the relations of the human skull with that of lower animals, discovered the middle upper jaw bone in the human skull. Meckel contributed important material, not only by his translation of Wolff's works, but by his own investigations, especially in regard to monstrosities or congenital deformities, which threw much light on normal development. Dollinger and d'Alton, the elder, also gave special attention to this subject, assisting their celebrated pupil, Pander, in his extensive experiments and investigations. D'Alton, the elder, made the beautiful copperplate engravings which illustrated Pander's works.

Von Baer began the investigations in 1819, which he continued until 1827 before publishing the results, which were given in his work entitled "Observations and Reflections on the Development of Animals" published in Konigsberg, in 1828. A second part was published in 1837, after eighteen years of hard study. Von Baer was the first to demonstrate the mammal [illegible] in the ovary. De Graaf having mistaken [illegible] for the ovum. Dr. Dalton says [illegible] Von Baer [illegible] was possible for man to do [illegible] the mode of [illegible] of. With the improvements in microscopes and new discoveries, Schleiden-

den found that all vegetable tissues were originally formed from cells. R. Brown discovered a nucleus in the vegetable cell in 1831, and Schwann, in 1838, proved that animal tissues were also developed from simple cells, and that the blasto-dermic, or germinal membrane, was itself composed of cells.

Purkinje discovered the germinal vesicle in the bird's egg, while Coste, in Paris, and Wharton Jones, in London, about the same time, discovered an identical structure in the egg of the mammalia, which was then called Purkinje's vesicle. Wagner observed within Purkinje's vesicle a constant factor, which was called Wagner's spot, or the germinal spot.

Thus all the different parts of the ovum were brought to light, but the origin of the germinal membrane was as yet unknown. Swammerdam, in 1685, had observed the segmentation of the frog's egg; but it was not until 1840 that Bischoff and Reichert showed that these segmentation globules were the source from which the primitive cells of the blasto-dermic membrane originated. Kölliker, in 1844, was able to demonstrate that all the cells in the different tissues of the body could be traced back to parent cells in the blasto-dermic membrane. Remak extended this law to all the normal adult tissues, and showed that cells were never developed except in direct descent from parent cells; and Virchow, the celebrated pathologist, created a new era in pathology by tracing this same law in all pathological formations; even cancer, which had been considered as a foreign growth, like a fungus, was shown to be only an extension of normal cell growth beyond its normal limits.

The leading principles and facts in embryology have thus been established, one after the other, by the labors of many different distinguished individuals, only a few of whom are mentioned in this brief sketch, the German and French physiologists taking the lead, though Horne, Lee, Bradford, Thompson, and other English doctors made valuable contributions, while naturalists in all parts of the world have, by their researches, confirmed the general application of

these laws to the whole animal kingdom. In our own country, Clark, Agassiz, Hyatt, Packard, and others have made valuable original studies on this subject; while the writings of Darwin, Haeckel, Huxley, and Tyndall have done much to interest people in the results of scientific labors.

There are at present three different methods of reproduction acknowledged:

First—Fissiparism, or reproduction by division of the parent.

Second—Gemmation or budding.

Third—Ovulation.

Most, if not all species which are propagated by fissure and budding, also produce true ova, so that De Graaf's dictum, "*Omne vivum ex ovo*," may yet prove to be a universal law.

A second law, that all ovules require the influence of a fertilizing fluid containing spermatozoa before an embryo can be developed, has some apparent exceptions, in what is called partho-genesis. It is known that certain insects may lay eggs which will develop without impregnation. The common aphis, or plant louse, has been known to produce nine generations from the first impregnated ovum; but most physiologists consider this as an extension of the fertilizing power, perpetuated from the mother to the offspring.

Setting aside these apparent exceptions, we may consider the following propositions as established:

First—All organized living beings proceed from eggs.

Second—All eggs require the influence of a fertilizing fluid containing spermatozoa for the development of the embryo.

Third—This fertilizing fluid and egg may be produced by one individual, or each may be furnished by different individuals, thus making the distinction of sex.

Fourth—Segmentation is the first stage in the development of the embryo, and this may take place without impregnation.

Fifth—The blasto-dermic, or germinal membrane, is

formed from the segmentation globules, but never without previous impregnation.

Sixth—There are three layers in the germinal membrane—external, internal, and middle.

Seventh—From the external layer are developed the central nervous system, with all its connecting nerves—the retina (crystalline lens, choroid coat of the eye), the skin with all its appendages, such as glands, hair, nails, etc., and a part of the amnion. From the middle layer are developed the heart and all the vessels of the body, with all the muscles and bones and their connecting tissues. From the internal layer is formed the lining to all the mucous membranes of the body.

Eighth—In tracing the development of the higher classes of animals, we have manifest indications of the types of structure of the classes below each of these higher.

Ninth—These types of structure appear in the same order of succession in the embryo, as the class of animals which they typify appeared in their maturity at different periods of the earth's history.

From these propositions, which have been clearly demonstrated, it is easy to see that embryology must be the guide in all attempts at the true system of classification, and that it is only by the study of the embryological development of the different organs and tissues, in the different classes of animals, that a true comprehension of their functions and relations can be obtained.

Not only is this true in regard to anatomy and physiology, the foundation of all medical studies, but embryology must throw much light on pathological formations, on hereditary diseases, congenital deformities, prenatal influences, and many other subjects of the greatest practical importance to every scientific mind, especially so to every conscientious physician.

It is to be hoped that our Universities and Medical Colleges will soon consider embryology worthy of more consideration than has yet been given, and our young students will take advantage of this field for original research

and important discoveries, and thus aid in perfecting this, as yet, young science.

Text books on this subject are few. Kölliker and Schenck have published small works on this subject in the German language, but I know of no other works attempting to give a general sketch even of the science as it now exists. Many valuable monographs are scattered through the scientific journals of Europe and America, awaiting some master hand to bring them together. Whoever has time to search for them will find it a most fascinating employment, and will be astonished at the amount of labor done by men whose names, like that of Mons. Gerbe of Paris, are seldom seen or heard, yet are worthy of the highest respect and honor. They work from a love for science and a desire to add to the general fund of knowledge for the world's benefit.

ON MENTAL INFLUENCES.

BY G. W. DAVIS, M. D., OF CHICO.

Every period of human life, from cradled infancy to the infirmities that pave the path of second childhood, is surrounded by numberless objects, circumstances, and influences that make deep and abiding impression upon the mind. The multiplicity of subjects in the different kingdoms of nature, and the ever varying interests and objects by which man is surrounded, and with which he is daily and hourly in contact, invigorate his imagination, challenge his attention, direct his associations, invite his contemplation, and give rise to a variety of mental emotions that may be more or less intense, and leave traces corresponding upon his physical organization. The balmy days of childhood and youth treasure the mind with ideas, whether false or true, that float down the current of time, causing happiness or misery in all the subsequent stages or conditions of life. The child acquires early in life the habit of believing in the existence and reality of things contrary to the dictates of reason and the plain truths of philosophy, and thus lays a broad and firm foundation for the fabric of duplicity and credulity that strengthens with the powers of manhood, and to which he ever after resorts to shield himself from the force and influences of truth and reason.

Such are the preliminary elements of his education, that he has a peculiar relish for novelties and whatever is mysterious and inexplicable. Fearful omens absorb his contemplation by day, by which fancy threads the fearful labyrinths of the future. The zephyrs of evening his imagination converts into the whispers of demons. The fracture of a

mirror or the howling of a dog are the premonitions of sickness and death; and his mental emotions may be so intense as to prove the truth of his delusions.

With such preliminary elements of education of so great a number, what can be the mental acquisition and moral fruits of manhood? Let the history of ages break upon your ears in reply. Let the duplicity of the nineteenth century be regarded as its legitimate offspring.

Who can measure the extent of such mental delusion, and limit its influence upon the human system in originating diseases, functional and organic? The preliminary elements of education thus briefly alluded to are conspicuous in all grades of society. They give character to the great mass of communities in all countries.

Hence the speedy growth of error and credulity and superstition. Hence the dizzy heights that mark the soaring flights of quackery. Hence the remarkable cures wrought through the medium of imagination, and success that frequently inspires hope and confidence in charms and incantations.

> "There are more things in heaven and earth, Horatio,
> Than are dreamt of in your philosophy."

These expressive words of admonition were given to the world more than two hundred and fifty years ago. The unparalleled progress of science, as well as the marvelous development of art, have but established the sublime vision of its author. We may yet ascend the highest scientific pinnacle and view the unexplored fields of science, and prophetically declare the wonders which future centuries will yet bring to the devotees of scientific research and knowledge. In taking a retrospect of medical history, how cheering the thought, as we are enabled to descry in the past, men in the different decades of time who were prodigies of genius, scientific attainments, and professional skill, and who were the great centers around which revolved all the lesser lights, in whose reflection they had their scientific existence. Boerhaave's Humoralism, Cullen's Nervous Doctrine, Clutterbuck's Cerebral Doctrine, Broussais' Physi-

ological Doctrine, and Cook's Vena Cavaism, have each had their period of power and reign, and in their respective times have required and engrossed the professional mind so as a consequence, upon their doctrines was based the practice during the periods of their dominion. We emerged from the "sea of blood" in which the Vena Cavaism of Cook deluged us, and are now led on by the expectant and asthenic waves of the philosophy of the present time until it has found its acme in the *vis medicatrix natura* of Sir John Forbes, or the more absurd and radical doctrines of Hahnemann. The great minds which have illuminated the medical horizon and arose to distinction and preferment at different epochs of time, though generally either adherents of a favorite philosophy or originators of some new doctrine, were minds amply capable of the highest culture and the most extended scientific acquirements, the most accurate observations and philosophical deductions. The name of Marshall Hall has become familiar to every student and investigator of the human system throughout the world. His investigations of the anatomy of the nervous system, and his discovery of hitherto unknown and complex functions, will perpetuate his name in all time to come, and the springing up of new modes of treatment, the result of his discoveries, is daily relieving hundreds of our fellow men in every nation and country.

These are the men we delight to honor, though many of their doctrines and theories live only on the page of history. They have contributed greatly to the advance of science. They merit the gratitude of the world as cultivators of science and as philanthropists. But, too great a majority of the profession are influenced and controlled by the prevailing doctrines, theories, and systems of the day, and they are too apt, I fear, to follow the established practice without investigating the scientific basis upon which such practice has been established. We are not the independent thinkers we ought to be, but more the inanimate

reflectors of the systems and practice of eminent men. I apprehend that a very large number of the profession pay less attention to, and understand less of, the influence which the mind exerts over the body in health and in disease, than of the relationship of any other part of the system. And whether it is because they consider this part of the system unworthy of their attention, or the functions too mysterious for their comprehension, or whether, in their opinion, such investigations do not tend to practical results, this is evident, that this highly important subject is too much neglected by the profession, greatly to the detriment of science, and to the honor of our noble calling.

We shall now briefly notice the power of the mind over the body, and in citing a few instances of its mysterious influence in the production or cure of disease, and the effect of fear, anger, hope, and the like, upon the body, I do not desire to be thought too credulous, or, perhaps, superstitious, because I am inclined to believe the results. Though not capable of demonstrating in all cases the mysterious laws of life, it is the duty of every physician, as far as possible, to understand the operations and manifestations of the mind. Not only should he do this to promote the cure of disease, but in his daily contact with parents, and delegated instructors of children, as well as the children themselves, he should be the medium of transmitting those proper elements of education, that the youthful mind may become imbued with solid facts, not fancy, with the importance of cultivating and exalting reasoning faculties, not a perversion, or almost complete destruction of them, through the absured training by those who are ignorant of this wonderful system. There can scarcely be a disease mentioned where he may not find such knowledge not only beneficial but essential. He may scientifically use such knowledge to excite a lively faith in a desponding and yielding spirit; he may also know how to hold forth the balmy and healing influence of hope, when and how to quiet the impatient and restless spirit, and at a proper moment, and in a proper manner, to secure resignation to

the "dying sufferer when hope no longer lives." And when the mind itself becomes diseased, when its faculties become "scattered like grains of sand before the storm," he alone can hope to collect and direct the shattered organ, who has studied the mind and its operations in health. It is here that the empiric, often more acute and always less scrupulous than the scientific physician, is enabled to dupe the morbidly superstitious or too credulous invalid by allaying his fears, obtaining his confidence, exciting his imagination, and bidding him hope that through his catholicon or panacea which is capable of prolonging life to an indefinite extent and of curing all diseases, his illness will vanish as by magic before its use. No one, I think, will deny that often real diseases, and frequently fancied ones, vanish before these empirics, who often unwittingly cure the patient through the powerful impression upon the mind, which, of course, is attributed to his infinitesimal doses or his secret panacea. The mind though self-existent, in its manifestations or operations depends largely upon external influences, as well as upon the body of man, and yet it exercises a dominion over the elements around it, and also over the body.

We all know that upon the health and vigor of the body depend the capacity and energy of the mind. A body worn down by disease and racked with pain renders the mind imbecile and often "dethrones reason." "The Jesuits, well versed in the subject of education, showed much sound wisdom in always ascertaining the character of the mother when they received a new pupil. They believed in the influence of the mother over the development of the embryo." Those who disbelieve that the mother, through a powerful impression of fear, or sudden emotion produced upon the brain, can have any influence upon the child through the nerves, tell us that there is no direct connection between the nerves of the mother and the child, and that there is no direct communication between the two. We know that the nerves and blood vessels have not been found directly to communicate with the child; but how else

will you explain the very sudden death of the embryo, the deformity of many children, which cannot be explained from any known law of development; the frequent occurrence of *nævi materni*, which often have their counterpart in substances or things which surround the mother, or, at some time during her pregnancy have made a strong and lasting impression upon her mind, if there is not some intimate, undefined, and controlling connection between the mind and nervous system of the mother and child.

A resemblance has often been traced in children of the second husband to the first, and this seems almost a convincing proof. The young and tender-hearted girl who has wedded her first love, is bound to him by the strong cords of unbounded love and deepest devotion; he for years has been the center of attraction; in him has been concentrated every object in life; every thought of happiness, and every pulsation of his heart, meets with a response in her own. In the change of all mutable things she becomes the wife of another, her soul yet dwelling upon the idol of her heart and her once happy home. Is it strange that under such circumstances the resemblance often should be marked? The Lacedemonians were familiar with this powerful influence, for they placed the beautiful statues of Apollo, Hyacinth, and Narcissus in the rooms of their wives when pregnant.

I could burden this article with a great number of cases showing the effect of mental impressions upon the embryo, but as this is not the special object of this paper, I will relate one very interesting and remarkable case. Dr. Howshipp, an English physician, relates the following: "A woman in a state of pregnancy was frightened in crossing a frozen river. The ice burst and cracked. She was terrified, and when delivered of the child its skin was rent and torn in many places, but had begun to heal up."

The mental emotion—*fear*—is well known in producing, or assisting to produce, certain morbid states of the system, and also in giving relief or assisting to promote recovery in certain or all diseases, mental or physical.

Dr. Holland, in his "Medical Notes and Reflections," devotes a chapter to the effects of mental attention of bodily organs. He shows that direct effects follow from consciousness being by a distinct voluntary effort, directed towards organs or parts of the body. Of the force of this statement every one must be easily convinced. Among other instances the state and action of the bowels is alluded to as thus influenced. The attention being concentrated on them sensations previously unnoticed are experienced, and their action excited and quickened.

Sometimes the return of a paroxysm of hysteria is promoted by the fear of the remedy resorted to. The emotion has been known to cure an attack of neuralgia. I have witnessed a violent case of nephritic colic cured by sudden fright. Near four or five weeks ago, in the town of Chico, there occurred five cases of poisoning by eating unwholesome mushrooms—a report of which will be presented to the society by Dr. Dawson. Three of the most violent of these cases fell into the hands of the regular physician. Of these three cases, the one that presented the most favorable prognosis exhibited the greatest amount of anxiety and uneasiness about his recovery, and I am very much inclined to believe that if the physicians of this man had not constantly offered hope and encouragement, both in word and action, notwithstanding they thought his recovery at one time quite doubtful, the patient would have been much worse than he was from the emotion that amounts to a species of fear.

The following case, related by Dr. Paris, shows what a wonderful influence imagination can exert in the cure of disease. As soon as the powers of nitrous oxide were discovered, Dr. Biddoes concluded that it must necessarily be a specific for paralysis. A patient was selected for trial. Previous to the administration of the gas, Sir Humphrey Davy, who managed the case, inserted a small pocket thermometer under the tongue. The patient, wholly ignorant of the nature of the process to which he was submitted, but deeply impressed with the certainty of its success, no sooner

felt the thermometer under his tongue than he concluded the talisman was in full operation, and in a burst of enthusiasm declared that he already experienced the effect of its benign influence. The opportunity was too good or tempting to be lost. Sir Humphrey Davy desired his patient to renew his visit on the following day, when the same ceremony was performed, and so on for a fortnight, the patient gradually improving; and he was at length dismissed cured, no other application being used.

The most fatal diseases, and those that frequently bid defiance to rational treatment, are disarmed of their ravages and arrested in their progress simply through the powerful influence of faith and imagination. If these two emotions can be so controlled as to save large communities from the desolation of the most formidable disease, what important auxiliaries may they not be made in the treatment of disease that more readily responds to medication?

The effect of moral emotion upon the genital organs, and through them the whole system, is a subject demanding serious attention. The effects resulting from this source are variable and complicated, and frequently hurry on patients to death's door, while their friends and physician little think of the cause.

The converse of the subject must also be understood, that while these agencies of moral emotions are capable of rolling back the tide of desolation and death, under certain circumstances they may be the cause of perpetuating disease and accelerating death. The criminal has laid his head upon the block for decapitation; his pardon has arrived ere the fated blow was given, but it came too late to save him—his own mental emotions have been his executioner. John Hunter, being contradicted by one of his colleagues at the hospital, was thrown into a passion, and struggled to suppress it, when, with a deep groan, he fell lifeless.

If moral emotions are sufficient to extinguish the vital spark in a healthy man, how indispensably necessary, under certain circumstances, that we guard these emotions when

the patient is suffering, for instance, with functional or organic diseases of the heart.

Dr. Thomas Brown, founder of the celebrated Brownsonian system, had a thorny path to fame, and during many years of his professional career met with persecutions and disappointments. His mental emotions and exercises were intense, to which he finally fell a victim, having been able to lecture on the day of his death.

In conclusion, permit me to reiterate, that the physician has it in his power, to a very great degree, to convert mental emotions into agents of life or death. It is no doubt owing to this ability that some possess, during widespreading epidemics, that makes such a striking contrast in the success attending different physicians. One relies solely upon the efficacy of drug treatment, while the other, having no less confidence in that, combines with it no little share of moral treatment. No one who has neglected the influence of the latter can appreciate its worth or fathom its results. Doubtless there have been many cases where the sad and gloomy countenance of the physician has sealed the fatal issue of his patient—cases in which a smile upon his countenance might have enkindled hope and confidence, and have been the cause of triumphant success.

If such be the result of mental emotion, that life and death are their issue, how important that the physician, in the treatment of his patients, should feel their efficiency, control their tendencies, and scrupulously guard his communications and deportment, for upon them frequently depend not only his success and reputation as a medical man, but the happiness of friends, the health, safety, and life of his patients.

HYGIENIC EDUCATION FOR THE PEOPLE.

BY M. M. CHIPMAN, M. D.

That at present important branch of medicine called hygiene, of which formerly so little was known, has had its origin, and owes its advancement thus far, principally to the studies, efforts, and influence of the most learned, most experienced, and philanthropic of the medical profession. When the physician has acquired that kind of interest in the practice of his profession that the restoring his patients to health in order to alleviate suffering, and bring relief and joy to their friends and families, has become one of the prime motives of his labor and vigilance, then his love and sympathy for his fello-wmen induce him to look beyond the present suffering, and he finds an additional reward in devising the ways and means of averting the pestilence and rendering innoxious the deadly contagion, and in instructing the people in those rules of life which conduce to more perfect development and the better preservation of health.

How much better the careful preventive measure than to risk the invasion that brings suffering and decimation. How much better to give the wise counsel that teaches to avoid disease than to rescue the stricken victim, perhaps shorn of beauty, and with lessened capacities for enjoyment and usefulness. But how often have the most disinterested efforts, and the most salutary measures of the physician and hygienist been rendered abortive by the ignorance and want of appreciation of those whom these measures were intended to benefit.

Among the older civilizations, where the one-man power yet rules supreme, or where but a small proportion of the people participate in the affairs of government—those being

of the educated class—it is an easy matter to convince the law-making power of the utility of sanitary regulations, and of the necessity of prohibiting all but such as are thoroughly qualified from practicing the medical profession. But in this country, where all men have an equal voice in State, county, and municipal management, these things are much more difficult of attainment. The mass of the people study the political situation, and some of the mercantile class interest themselves in statistics which exhibit the commercial and financial condition; but when it comes to matters of public health, many good citizens find it difficult to distinguish between measures calculated for the benefit of the community and the money-making jobs of political speculators; and with a general acquiescence in the necessity of stringent laws for the suppression of counterfeiting the circulating medium, a large proportion of the people are yet unable to comprehend the necessity or reasonableness of suppressing that most dangerous imitation—the counterfeit physician. But in all human affairs are intermixed the true and the false, the real and unreal, that which is and that which seems to be, and men are sometimes deceived into receiving shining brass for true gold when not in possession of anything to test it with; and it is therefore in accordance with the natural order of things that the average citizen should sometimes be deceived by external appearances, always gotten up for effect, in regard to matters of which he has no knowledge or test to apply. In fact, so little perhaps does he know of the wonderful complex structure which constitutes his own personality, or of the intricate processes by which life is sustained, that he can have no conception of the variety of diseases to which the delicate organism may be subject, or of the care and skill required in their treatment, nor of the amount of study and preparation, and the opportunities necessary to qualify the practitioner, and is therefore equally unable to understand the value of authorized credentials or the necessity of legal protection.

But it is unnecessary for me to dwell upon a class of defects and evils so well understood by the profession, and I now propose the remedy. Education has been frequently advocated as a great cure-all for many human evils, and especially for defects existing under free institutions; and in sooth, I know of no remedy which promises so much as a universal panacea, as correct, appropriate, and well directed education. But, although all branches of education taught in the schools may be useful, either for the knowledge acquired or for discipline of the mind, yet there is a tendency at present, as there always has been, to study those branches which are considered ornamental and fashionable to the neglect of other branches which would be much more beneficial, and especially where time and means are limited it would be best, as a rule, to learn those things which are most useful first. A good knowledge of the classics may not teach a man the full advantages of temperance and continence, neither will the ability to compute the distances or trace the movements of the stars, enable him to understand the proper uses of the organs of his own system or the requirements of the body; nor will the greatest accomplishment in the terpsichorean art, or the most accurate knowledge of drawing or music, teach the young lady the reason why the smallest possible waist should not be considered the most admirable.

I have always found that those gentlemen who have been regularly educated as physicians, but who from some cause have not practiced their profession, and all others who have studied at regular medical institutions long enough to obtain the groundwork of medical science, are friends and supporters of the regular physician; and if that class of men were more numerous, there would be no difficulty in procuring the enactment of wholesome sanitary laws, and the suppression of quackery.

The number of physicians engaged in curing disease and in repairing the accidents to life must always be limited; but the number of hygienists might, with great advantage to the people, be practically unlimited. Dunglinson defines

hygiene as "that part of medicine whose object is the preservation of health; it embraces a knowledge of healthy man, as well as the objects used and employed by him, with their influence on his constitution and organs." But, in order to obtain a knowledge of healthy man, it is indispensable by dissection to learn the structure and relations of the various organs, which, combined and joined together, form the body; and in order to understand what is required for the proper sustenance of the body, and the influence of the different articles used upon the constitution and organs, it is necessary to learn the elements which enter into the composition of the body, and to study the functions of the various organs.

And to acquire a knowledge of these branches, special opportunities are required. As to such special opportunities: In the first place, I would suggest that medical colleges might enlarge their facilities for dissecting, to accommodate a class of students who should attend for the purpose of learning all that is necessary to the full understanding of the hygienic branch of medicine only. And literary colleges might add to their curriculum each a professorship of hygiene, the chair of which should be occupied by a competent graduate of medicine. And private schools should be authorized, under the control of able and responsible teachers, where thorough instruction in all that constitutes preventive medicine might be given; and then the graded schools should be furnished each with a teacher fully qualified to give instruction in this useful branch.

And I submit, that these steps being taken, whereby the people would be more fully brought into partnership with the medical profession in disseminating this branch of knowledge which so intimately and deeply concerns themselves, would contribute eventually more than any other measure which could be adopted, towards evolving wise and efficient sanitary regulations, the suppression of the peculiar American evil and imposture of quackery, and the better development, improved healthfulness, and increased longevity of the human family.

PIGMENT INDURATION OF THE LUNGS,

ASSOCIATED WITH HEART DISEASE.

BY HENRY WORTHINGTON, M. D.

It is an accepted notion that science aspires to precision and exactness. It is also incontestible that medicine is advancing pretty surely into this magic circle of exactitude, and this advance is in part due to the study of lesions or pathology, and to the study of symptoms or semeiology—two departments most accessible to the general observer. Although it is certainly a fact that a knowledge of lesions does not always enable us to cure them; while it is again claimed, with show of reason, that etiology and therapeutics should go hand in hand; yet modern medicine owes an inestimable debt to the pathologist and the semeiologist, overshadowing possibly the laborious and elaborate investigations of the latter-day etiologist and therapeutist. Because any newly discovered morbid condition has lain unrecognized in times past, it is no evidence that an abnormality had not existed. Pathology, in fine, has unvailed so many of the mysteries of disease, that, like the laws of variation in nature, each new discovery reveals facts hitherto hidden away and apparently beyond recognition.

With these generalizations, I may state that the following observations are intended as a contribution to the study of a lesion which was first demonstrated by Virchow, and which he termed "Pigment Induration of the Lungs." His account is as follows:

"There is a process, which, in spite of its frequency and characteristic appearance, has attracted but little attention. * * * * When the thorax is opened the lungs appear

prominent, do not collapse, are compact, heavy, inelastic, and have frequently a peculiar yellow, brown, or reddish-brown color. * * * The tissue is dense, and at many points are red spots, * * * also other spots of a brown, rusty, or black color. Microscopical examination shows only the normal tissue, with extravasated blood in different stages of transformation into pigment. In the neighborhood of the points of extravasation the epithelial cells of the alveoli are stained yellow, and it is easy to see that these cells are identical and continuous with the colorless epithelium. * * * In addition, extravasations of blood take place in the interstices of the tissue, and these become changed into pigment. This lesion of the lungs is produced by chronic hyperæmia."

Although Skoda, Louis, Andral, Stokes, Walshe, and others, have referred to this condition, in general, the literature of the subject is meager, and with some reason, inasmuch as the affection, proved by numerous post-mortems as not rare, is extremely difficult to diagnose. Indeed, what are many times recorded as tuberculous consolidations and chronic pneumonic hepatizations, are well defined cases of pigment indurations; for the cases are too numerous, and too well attested by hospital autopsical tables, to doubt that the mistake is a common one. Furthermore, Delafield's admirable statistics show how, even when there is a suspicion of the existence of the affection, a diagnosis is never positive. So that it may be said, any evidence rests upon a very slender basis. I have more faith in our diagnostic art, however.

It is true that any symptoms which indicate obstruction to the passage of the blood from the lungs into the left auricle, point to this disease. Dyspnœa, cough with muco-sanguinolent expectoration, with the existence of emphysema, may be included as evidences of pigment induration; further confirmed by lessening of resonance over both lungs, enfeebled respiratory murmurs, and by the presence of subcrepitant râles; still made more certain by the association of mitral stenosis, or some cardiac disease; for

modern pathology teaches that a chronic hyperæmia, such as may be produced by heart disease, does give rise to organic changes in the pulmonary structure. This change consists in a dilatation of the capillaries, hypertrophy of the alveoli and pigmentation. This discoloration is easily seen by the naked eye, but the appearances under the microscope are, of course, still more characteristic. The different colors are probably only modifications of the same substance.

Rindfleish states that "the parenchyma gradually collapses more and more, the alveolar walls come into apposition with each other, stick together, and form a dense, hard, black mass, traversed by few blood-vessels; * * * the alveolar septa can still be recognized in thin sections in spite of their close apposition; * * * there is no reason to think that any inflammation precedes this condition."

Trousseau gives us a graphic description: "* * * We generally find small portions of lungs which are centers of congestion, as hard as pneumonic nuclei in their second stage, and as dark in color as the spleen. * * * In hæmoptoic engorgement, the indurated part presents a perfectly homogeneous color, almost black, or very deep brown-red, which renders it impossible to recognize in the pulmonary texture more than the bronchial tubes, and the largest blood-vessels, the tunics of which have lost their white appearance from being soaked in and stained with blood."

Walshe mentions the existence of a condition consisting of cough, watery expectoration, pulmonary apoplexy, dyspnœa and orthopnœa, as the result of mitral stenosis. Stokes says that disease of the mitral valve gives rise to cough, dyspnœa, sanguinolent expectoration, and pulmonary œdema. Neimeyer hardly notices the affection, and Flint, Wood, Watson, Da Costa, Loomis, and Aitken are silent. Balfour's cases of old heart disease confirm also the recorded results of other observers. And Delafield has written by far the best account of this condition, and shows in twenty

post-mortems that pigment induration is not by any means to be called a rare disease.

My observations, based on a study of eight autopsies, tend to confirm me in the opinion that it is not exceptional among a given number of patients, that in the Grecian sense would be called phthisical. The excitement of mining seemed to have been the exciting cause of this affection in six of the eight cases; yet rheumatism had occurred in five cases, in three of which there were pericardial changes, and in all endocarditic processes. All suffered from dyspnœa, all had pain; seven had bloody and one watery expectoration. The affection was suspected in five cases, and confirmed at the autopsy; of the remainder, one died in a relapse of fever, another presented all the evidence of Bright's disease, and the third was set down to chronic pneumonia.

A diagnosis was based on the following points more particularly: History of heart disease antedating any pulmonary symptoms; the existence of either mitral stenosis, or disease obstructing the passage of blood from the lungs into the left auricle; dyspnœa; cough with sero-sanguinolent sputa; pain or distress about the cardiac region; physical examination eliciting general loss of resonance; weakened respiratory murmurs, sometimes a sort of bronchial breathing, or a "blowing sound;" subcrepitant, infrequently very fine, râles disseminated through the lungs.

Of course, our diagnostic difficulties are great even with so characteristic a group of symptoms as these; indeed, we might almost repeat, with Bouillaud, that the nature of the disease has to be divined rather than diagnosed. The appearance of the lungs, when cut into, agreed in almost every particular with the descriptions given by Delafield. The pigmentation was usually easily seen with the naked eye. In two cases there was œdematous infiltration, and in one of these posteriorly there were numerous hemorrhagic infarctions. In one case there was calcareous degeneration of right lung. In two cases there were irregular patches of red hepatization, but quite different from the granular

appearance of croupous pneumonia. Pleuritic and pericarditic adhesions were noted; in the former seven cases, in the latter three cases, with more or less effusion in each. The liver was diseased in seven cases; the spleen in six; the kidneys in six; and the brain in one case. The heart was enlarged in six cases; in two it was small and pale. The left auricle was found dilated in five cases; the right in three; and the ventricles in one case. There was mitral disease in six cases. Of these, in one case there was enormous dilatation of left auricle and hypertrophy of the left ventricle, and insufficiency of the mitral valve; in another, atheromatous and fibrinous deposits along the walls of the left auriculo-ventricular opening, and dilatation of left auricle; in a third, hypertrophied left ventricle and dilated auricle, the valve being covered with vegetations; in a fourth, the leaves of the valve and the chordæ tendineæ were thick and rigid, the aortic opening was contracted into a button-hole slit, the left auricle was dilated, and the left ventricle greatly hypertrophied; in a fifth case, the valve was lined with a layer of atheroma, the anterior flaps of the tricuspid valve were hypertrophied and stiff, and the left auricle was dilated; and in the sixth case, there was stenosis, and atheromatous deposits in left ventricle. In the remaining two cases, in one there was aortic stenosis; and in the other, calcareous degeneration and aneurism of the arch of the aorta.

In reviewing the cases, the brief histories are transcribed almost verbatim from my note-book:

CASE ONE.—Jno. Bieman, German, æt 66. Patient was admitted into hospital suffering from intense dyspnœa and orthopnœa; vomited frequently, coughed constantly, expectorating a muco-sanguinolent matter, and he complained of pain in the cardiac region. An examination elicited the fact that there was a mitral systolic murmur and a harsh bruit heard loudest over the situation of the aorta. Prof. John T. Metcalf, who was in Los Angeles, saw the case and diagnosed it as one of aneurism of the aortic arch, which

was confirmed at the autopsy. The respiratory murmur was feeble throughout; anteriorly on right side there were subcrepitant râles and loss of resonance, and posteriorly (sub-scapular) there was entire absence of sound and complete dullness on percussion. Patient had been ill for a few months only; had never had rheumatism, and with the exception of a fever contracted while in the mines, had enjoyed good health previously. He had always used tobacco to excess, but drank beer moderately. He had been on this coast since '57, and always worked in a mine. His family history was good. He died six days after admission into the hospital, suddenly, whilst rising in bed.

CASE TWO.—Mike Reynolds, lab., æt. 65. History of renal disease. His breathing is labored; coughs much, the sputa being watery and bloody; has no appetite and is anæmic. Physic. exam.—Comparative dullness on both sides, loose, coarse râles throughout; respiratory sounds indistinct. The urine is albuminous, and there is œdema of the feet. A soft regurgitant murmur is heard over the situation of the left auriculo-ventricular orifice. After lingering on for several weeks, patient died suddenly whilst at stool.

CASE THREE.—R. Reamyl, miner, æt. 59. Began to have pain in cardiac region six months ago. Then followed a cough and shortness of breath, with bloody expectoration. On admission, he was anæmic, breathed asthmatically, and vomited constantly. Physic. exam.—Feeble respiratory murmurs, subcrepitant râles, and friction sounds; the percussion note is dull. The apex of the heart is pushed downwards and to the left about an inch, and there is an unmistakable regurgitant murmur at mitral orifice. The diagnosis of mitral disease was confirmed two weeks afterwards.

CASE FOUR.—D. Gardoni, miner, æt. 33. The patient had run through a course of typho-malarial fever, and on

the fifth day of a relapse, he died suddenly. Previous to the fever he had had two attacks of rheumatism, and since then he complained of pain in the heart, dyspnœa, cough with bloody sputa, and sharp stitches of pain posteriorly. A diagnosis of tricuspid disease was rendered more than probable by there being a murmur at the lower end of the sternum, violent pulsations, undulatory, synchronous with the arterial pulse, and producing a characteristic turgescence of the neck. If this was caused by a reflux of the blood which the right auricle refused to pump into the ventricle, then it was an example of Lancisci's "venous pulse."

CASE FIVE.—Jno. Donnelly, miner, æt. 37. Been complaining of palpitation, breathlessness, and cardiac pain for about eighteen months. Latterly he has coughed some and spat up considerable blood. He now suffers from great weakness, and has much distress when lying down. There is ædema of the extremities, and at times he is delirious. He states that his father and mother died of heart disease. A loud sawing murmur is heard over the mitral orifice, presystolic in character, and the impulse is felt more than an inch below the normal line. Râles, dry and moist, are heard before and behind, and there is loss of resonance on both sides. The death was sudden.

CASE SIX.—Thos. Melvin, miner, æt. 55. Patient states that he had a short attack of rheumatism two years ago, in Nevada, since which time he has never been entirely free from distress about the heart. Three months ago he began to cough, while in San Francisco, and had a sharp hæmoptysis. Dr. Toland advised him to go to Southern California, and so he sought admittance into the hospital here. There were feeble respiratory sounds on both sides, pleural friction murmurs, subcrepitation, and loss of resonance. The sputa were muco-sanguinolent. The *fremissement cataire* was distinct, and on applying the stethoscope, a soft bellows-murmur was heard over the left auriculo-ventricular orifice.

The pulse was irregular and small. The man died six weeks after admission.

CASE SEVEN.—C. Rudolph, miner, æt. 49. Has always suffered more or less from palpitation and irritability about the heart. Father, mother, and two brothers died of heart disease, so that, according to Mauriac, he probably has the "cardiac diathesis." He was in the hospital several months before death, and there was a progressive increase of the cough, with puro-sanguinolent expectoration, embarrassed respiration, and constant lancinating pain in the chest and heart. The pulse was exquisitely rapid and bounding, exhibiting all the characters of the *pouls de Corrigan.* With the second sound, at the base, a distinct musical murmur was heard. The action of the heart was violent; there was œdema of the feet.

CASE EIGHT.—Joseph Frey, painter, æt. 52. Served in Mexican war, and has led a hard life since. Says the doctors pronounced him incurable several years ago. Still he continued to work and drink as usual, until a pneumo-hemorrhage frightened him into the hospital. An examination elicited evidence of consolidation of the right apex, œdema of the middle and inferior lobes, and in the left lung emphysema. There was a soft bellows-murmur over the mitral orifice, and a *bruit de souffle* and intensified pulmonic second sound at the base. An indistinct double sound (reduplicated murmur of Duroziz) was detected over the carotid. The man died quietly one day whilst cleaning his copper medal.

Below is given a tabled resume of the foregoing observations:

PIGMENT INDURATION OF THE LUNGS.

No.	Age.	History.	Heart.	Lungs.	Liver.	Spleen.	Kidneys.	Brain.
1	66	Jno. Bieman, German, Miner. Intense dyspnœa, anæmia, persistent vomiting, cough, cardiac pain, murmurish confusion at mitral valve, aneurismal bruit over aorta, isochronously pulsating with the heart, absence of respiratory sounds over lungs, both sides.	Pericardium thickened and filled with serous fluid, heart pale and flaccid, auricles dilated, calcareous masses about the mitral flaps, aneurismal dilatation of arch of aorta, complete calcification of the thyroid gland.	Old pleuritic adhesions, pigment induration left lung, right lung bound to chest-wall and broken down into a cheesy and calcareous mass.	Enlarged intralobular, veins dilated, very pale.	Infarctions.	Small and pale.	.....
2	65	Mike Reynolds, Laborer. Has had kidney disease 2 yrs; cough, watery expectoration, ædema and albuminous urine; loose râles and dyspnœa, murmur at mitral orifice, insufficiency aortic valve, and dilatation of left auricle. Death sudden.	Hypertrophy, aortic valves thickened and incompetent, mitral valve insufficient and left auricle enormously dilated, pericardium adherent, weight, 16½ oz.	Pigment induration of left lung, right lung ædematous, hydrothorax, pleuritic adhesions.	Enlarged and hard, pale.	Enlarged and congested.	Chronic parenchymatous nephritis, cortex pale and prominent, weight, 14½ oz.	.....
3	59	R. Reamyl, German, Miner. Cough, bloody sputa, dyspnœa, râles, loss of resonance, double regurgitant murmur at mitral valve; apex displaced one inch.	Pericardium thickened and filled with sero-purulent fluid, heart hypertrophied, stenosis of left auriculo-ventricular orifice; weight, 31 oz.	Pigment induration, pleuro-pneumonia, pleuritic adhesions.	Small and pale.	Normal.	Pale and contracted	.....

4	33	D. GARDONI, Italy, Miner. Died on the fifth day of a relapse of typho-malarial fever. Previous to fever there was cough and bloody sputa, dullness posteriorly, râles; at the tricuspid valve a distinct murmur.	Small and pale, right auricle dilated, hypertrophy of anterior flaps of tricuspid valve, fibrinous deposits in the meshes of the columnæ carneæ of left ventricle.	Pigment induration of the right lung, pleuritic adhesions, irregular red hepatizations.	Enlarged slightly.	Hyperæmic and softened.	Congested and enlarged.	Extravasations, small and flat in the pia mater, not involving the brain tissue.
5	37	JNO. DONNELLY, Ireland, Miner. Palpitation, dyspnœa, pain, orthopnœa, delirium, œdema, presystolic mitral murmur, râles in both lungs, dullness and hæmoptysis.	Hypertrophy, incompetence of mitral valve, left auricle enormously dilated, hypertrophy of left ventricle; weight, 16½ oz.	Pigment induration, stain very distinct, œdema left apex, calcareous vomicæ posteriorly.	Congested and enlarged.	Enlarged.	Normal.	.....
6	55	THOS. MELVIN, Ireland, Miner. Ill two years with pain in the heart, breathlessness, cough with bloody sputa, râles and dullness, murmur at mitral valve, frémissement cataire.	Mitral stenosis, atheromatous deposits in left ventricle, dilatation of left auricle.	Pigment induration of right lung, pleuritic adhesions.	Small and pale.	Normal.	Normal.	.....
7	49	CONSTANTINE RUDOLPH, Swede, Miner. Dyspnœa, cough, râles, pain, aortic regurgitation, pouls de Corrigan. "Cardiac diathesis."	Hypertrophy, dilatation of right auricle, contraction at the aortic orifice; weight, 17 oz.	Ædema upper lobes, both sides, pleuritic adhesion posteriorly, pigment induration.	Intralobular veins dilated.	Congested and hard.	Small, pale, contracted.	.....
8	52	JOSEPH FREY, German, Painter. Old heart disease; cough, pneumo-hæmorrhages, dyspnœa, soft murmur at mitral valve and bruit de souffle at base. "Reduplicated murmur of Duroziz."	Button-hole contraction at aortic orifice, atheromatous deposit along the mitral segments, hypertrophy of left ventricle, dilatation of left auricle.	Pigment induration, ædema, emphysematous left lung, old pleuritic adhesions.	Cirrhosis.	Large.	Chronic parenchymatous nephritis, atrophied.	.....

TREATMENT OF CHRONIC CORPOREAL ENDOMETRITIS.

BY STILLMAN HOLMES, M. D., OF SANTA CRUZ.

A great diversity of opinion has always existed among our leading gynæcologists in regard to the treatment of this disease. I will not occupy the time of the society by giving minute details of treatment, nor by discussing the various complications which frequently co-exist with this affection, as they have all been so ably and thoroughly discussed in our various works on uterine diseases. I simply propose to briefly consider the merits of the several forms of intra-uterine medication in most general use.

The use of medicated intra-uterine injections in the treatment of this disease has been advocated by some high authorities, among them by Velpeau, Matthews Duncan, Tilt, and others; but, at the present day, the predominance of authority is decidedly against them. They are opposed by Atthill, Playfair, H. Bennet, Gosselin, Depaul, the late Dr. Simpson, and many others. Dr. Thomas, in his remarks on the subject, gives pretty conclusive evidence that, even in the most skillful hands, they are not entirely free from danger. A considerable number of fatal cases of peritonitis have resulted from their use, and in numerous other cases they have caused very alarming symptoms.

Alterative applications can be applied to the interior of the uterus with equal efficiency, and with perfect safety, in the manner described by Dr. Thomas, which consists in passing a small cervical speculum through the cervical canal, and then saturating a swab, made by wrapping a probe with cotton, with the medicated fluid, and passing it into the uterine cavity. This is the form of intra-uterine medication which Dr. Thomas has found most efficacious,

although, from the very unfavorable prognosis which he gives in cases of long standing, it would seem that this mode of treatment has not proved very successful.

Scanzoni, who recommends, in obstinate cases, either medicated injections or the use of the porte-caustique armed with the nitrate of silver (giving the preference to the latter), gives a still more discouraging prognosis. He remarks: "As for ourselves, we do not remember a single case where we have been able to cure an abundant uterine leucorrhœa of several years standing." (Scanzoni, Diseases of Females, 4th Am. ed., p. 202.)

The use of strong caustic applications in this disease is objected to by some of our highest authorities, Dr. Thomas, among others, although he approves of their use in obstinate cases of cervical endometritis, and in fungous degeneration of the mucous membrane of the body of the uterus. In this latter affection he however prefers the curette.

On the other hand, this class of applications is highly approved by Dr. Atthill, Dr. Playfair, M. Courty, the late Dr. Miller of Louisville, the late Dr. Churchill, and others.

M. Courty, in his work on Diseases of Women, advocates the use of the solid nitrate of silver. He introduces a small piece of the solid stick into the uterine cavity, and leaves it there to dissolve. He states that this treatment has always proved successful in his hands.

Professor R. Beverly Cole, of San Francisco, informs me that he has taught and practiced this treatment for fifteen years, and that he has derived none but beneficial results from its use.

Dr. Playfair prefers the carbolic acid, combined with an equal quantity of glycerine, and states that in his experience in no case have any ill effects followed its use, and that he has never had a case which has resisted its action. He remarks that he has not tried the nitric acid. (Braithwaite's Retrospect, Part 67, pp. 223, 224, from the Lancet.)

Dr. Miller states that in a very large experience, extending over a period of seventeen years, he has followed the practice of cauterizing the cavity of the uterus with the acid

nitrate of mercury and other strong caustics, "without any more pain than attends canterization of the cervix and without any evil consequences whatever." (Quoted by Playfair, Op. cit., p. 221.)

Dr. Atthill gives a decided preference to the nitric acid, in severe and obstinate cases, and in cases accompanied with hemorrhage. He describes its action in the following language: "Its application causes very little, indeed in general, no pain. It produces but a superficial slough, and has often a wonderful effect in bringing about a healthy condition of mucous membrane lining the body and cervix uteri. It also, in many instances, exerts a directly sedative influence, allaying the severe pain and vesical irritation so constantly present in cases of endometritis." He reports very satisfactory results from its use, and states that in no case has it produced any unpleasant effects. (Braithwaite, Part 67, pp. 178, 181; and Part 69, pp. 240, 242.)

From what we know of the pathology of the disease under consideration, as stated by Thomas, Scanzoni, and others, and from the general results of the experience of the profession, it seems evident that in all severe and obstinate cases, and, in fact, in all cases of long standing, of chronic corporeal as well as cervical endometritis, it is necessary to commence the treatment by the application of some strong caustic to the uterine mucous membrane, in order to establish the healing process, and bring about a healthy condition of the membrane. I have accordingly, for several years, commenced the treatment of all such cases by the use of some application of this class. For various reasons, I have given the preference to the nitric acid. The acid nitrate of mercury possesses no advantage over the nitric acid, and, in some cases, has produced salivation. The solid nitrate of silver, left in the uterus to dissolve, seems an inconvenient application, and, according to Dr. Atthill, its action is not so effectual nor so free from pain as the nitric acid. The use of the nitrate of silver by the porte-caustique, as practiced by Scanzoni and others, seems not in general to have accomplished the desired effect. The carbolic acid, according to

the experience of Dr. Atthill and others, is not as efficient as the nitric acid.

I have had considerable experience in its use for several years, and in no case has it produced any unpleasant or injurious effects. I frequently meet with cases that prove very slow of progress, and that require treatment for many months, especially those cases complicated with much hypertrophy, the "areolar hyperplasia" so clearly described by Dr. Thomas; but I have met with no case that did not gradually improve under treatment, or in which the patient was not satisfied with the result. Unless some incurable complication exists, I believe we can always expect, if not a perfect cure, at least very great amelioration of the symptoms.

The success of the treatment will, of course, depend on its being properly carried out. It must be admitted that this disease is not easy to cure, and that much familiarity with uterine diseases, and the most careful attention to all the details of treatment, both general and local, are indispensable requisities to success. Before applying the caustic, any existing tenderness or congestion of the body or cervix of the uterus must be relieved as far as possible by rest, local depletion, warm water injections, emollient applications, etc., and any existing displacement must be corrected as far as practicable; although I have generally found, as stated by Dr. Bennet and Dr. Playfair, that these displacements tend to gradually disappear as the uterus assumes a more healthy condition. The uterus must be relieved from pressure by the use of the skirt-supporter, and in many cases the use of the abdominal bandage is very beneficial. The cervical canal is almost invariably very open and patulous in this disease; but, should it not be sufficiently so, it must be dilated by tents of sponge or sea-tangle, not neglecting to observe the extreme caution in the use of these tents which is enjoined by Dr. Thomas.

In making intra-uterine applications, I prefer the ordi-

nary Ferguson's glass speculum, for the reasons stated by Dr. Playfair, that it excels all others in illuminating power, and by fixing the cervix in the extremity of the speculum, it presents mobility of the uterus. If this speculum be used, it is necessary to be provided with a number of them of various lengths and sizes, and to select one as *short* as the case will admit, as recommended by Dr. Thomas. I have also found it a great advantage to use as *large* a speculum as can be conveniently introduced.

Should the mucous membrane of the cervical canal be in a healthy condition, it must be protected from contact with the acid by the introduction of the cervical canula. The application of the acid is materially facilitated by drawing down the os uteri with the vulsellum, especially in cases accompanied with flexion. I usually find a *light* application of the acid sufficient. I have had no experience with its free application, and should suppose that it would very rarely, if ever, be required. Having prepared a number of swabs, by wrapping delicate probes of whalebone or other flexible material with a thin layer of cotton, and having thoroughly cleansed the internal surface of the uterus, I dip one of the swabs in the acid, and *carefully remove all superfluous acid* from the swab. I then pass it up to the fundus, and move it gently over the surface. Perfect rest must be enjoined after applying the caustic. I frequently find a single application of the acid sufficient. After destroying the granulations or fungous growths, which usually exist in these cases, any farther cauterization would, of course, interfere with the healing process, and it is therefore very important to avoid too frequent cauterizations. I usually follow this treatment by the application, at intervals of five or six days, of the tincture of iodine, and should the patient not continue to improve after several weeks, I repeat the application of the acid. In several cases accompanied with obstinate hemorrhage, I have by a single application of the acid, permanently arrested the hemorrhage. For several days before and after the menstrual period, all applications

should be omitted, and the patient should be directed to take more than the usual amount of rest during menstruation.

In cases complicated with inflammation of the os uteri or cervical canal, or with hypertrophy of the cervix, I find frequent irrigations with warm water very beneficial. I have also derived great assistance in these cases from the use of sponges medicated with a weak solution of iodine, tannic acid, or other medicinal substances. Glycerine is also a valuable addition in many cases. The iodine has the advantage of being one of the best disinfectants as well as alteratives. These medicated sponges are introduced through the cylindrical speculum, up to the os uteri, and allowed to remain for twenty-four hours. The patient can herself be taught to introduce them if desirable. I also find sponges of a larger size, medicated according to the requirements of the case, very useful in cases accompanied with displacement, by acting as a support to the uterus. In many of these cases pessaries of solid material cannot be borne without great discomfort.

Tonics, laxatives, and other medicines must be given when required, and throughout the whole course of treatment the general regimen of the patient must be strictly attended to. The diet should be carefully regulated, and as much out-door exercise directed as the patient can bear without producing fatigue or aggravation of the local symptoms. Baths of some kind are generally beneficial, and sea-bathing is in many cases of great service. The regulation of the genital functions is also important. In some cases total abstinence from sexual indulgence will be required, and in others great infrequency and caution.

The mental depression which so often exists in this disease is a very great hindrance to the cure, and should be counteracted as far as possible by the influence of cheerful and congenial society; and whatever other agreeable mental influences can be commanded. One of the most effectual hygienic remedies is a total change of climate, scenery, and association. A sojourn at the seaside has generally proved

exceedingly beneficial, especially to those patients residing in the interior or in large cities. I know of no place that offers greater advantages as regards climate, scenery, sea-bathing, agreeable society, etc., than Santa Cruz, and patients affected with uterine disease, have, in all cases that have come under my observation, been benefited by a sojourn here.

I will give a brief statement of a single case, not as presenting any extraordinary features, but simply by way of illustration:

On October 29, 1877, I was consulted by Mrs. ——, a lady from a distant Territory, aged 32. She had been married thirteen years, and had borne two children, the oldest being seven years of age. She had always enjoyed good health, with the exception of excessive nausea and vomiting during her pregnancies, until June, 1874. At that time she again became pregnant, and the nausea and vomiting became so obstinate and uncontrollable, and she was becoming so much reduced in strength, that, at the fourth month of pregnancy, her attending physicians decided to produce abortion. This was effected, but was attended with excessive hemorrhage, which reduced her to a condition of extreme debility. Soon after she became affected with pain in the back and loins, followed by leucorrhœa and menstrual disorder. Her nervous system became seriously affected, and she had occasional attacks of hysterical coma.

In February, 1865, four months after her confinement, she went to Buffalo and placed herself under the treatment of Dr. James P. White, the eminent gynæcologist of that place. I am not furnished with the doctor's statement of her condition at that time, excepting that he told her that she had a great deal of enlargement and inflammation of the neck of the womb. Under his treatment she steadily improved, and at the end of three months was much better in every respect. He informed her that she had still considerable enlargement and inflammation of the neck of the womb, and that she would require several months further

treatment, but as he was about leaving Buffalo for an absence of several weeks, she returned home. She continued to improve for some months longer, and, although not fully recovered from the leucorrhœa, pains, and nervous disorder, was able to pursue her ordinary avocations for nearly two years.

Owing to several months continued over-exertion, her former symptoms returned with increased severity, and when she came to me for treatment, she was affected with pains in the back, hypogastrium, and left ovarian region, copious leucorrhœa, anorexia, meteorism, and much nervous disorder. At the commencement of each menstrual period, the discharge was irregular and scanty, and was accompanied with such intense pain as to require the hypodermic injection of morphia, and the inhalation of chloroform to give relief. The dysmenorrhœa was also generally accompanied with paroxysms of hysterical coma. On examination I found the external os and cervical canal in a perfectly healthy condition. The internal os was relaxed and patulous, and there was considerable enlargement and tenderness of the uterine cavity. I found also some enlargement and tenderness of the body of the uterus, but no displacement of the uterus, excepting a slight prolapsus. The case was plainly one of corporeal endometritis. After several days of preparatory treatment, I made an application of strong nitric acid to the mucous membrane of the body of the uterus, in the manner described in the foregoing remarks. This caused no pain, either immediately or subsequently. I ordered perfect rest for several days, and prescribed tonics and such other remedies as the case seemed to require. At the expiration of a week, I made an application of the tincture of iodine in the same manner, and continued to make this application, excepting at or near the menstrual period, at intervals of five or six days, as long as any symptoms of the disease remained. At the next menstrual period after applying the acid, the pain was less severe, but the menstrual discharge was more copious, and was followed by a much more abundant leucorrhœal

discharge than had previously existed. This continued for several days, and then gradually diminished. From that time she improved rapidly. I should remark that soon after her arrival in Santa Cruz, she experienced a very invigorating effect from the change of climate. At the second menstrual period after commencing the treatment, she was entirely free from pain, and at the expiration of three months had entirely recovered; as she expressed it, she never felt so well in her life. She now writes (April 12) that she is in perfect health.

REMARKS.—This case presents several points of interest. It is evident that it was originally a case of areolar hyperplasia, and that this was consequent on subinvolution, following abortion, and was complicated with endometritis. The rapidity and completeness of the patient's recovery was no doubt owing to her vigorous constitution, and also to the fact that her cure had been a large part effected several years previously by Dr. White. The invigorating effect of the climate, and the other favorable hygienic influences of Santa Cruz, also, without doubt, contributed much to her recovery. This case is also an illustration of the fact stated by Dr. Bennet, that hypertrophy of the cervix uteri will frequently continue to subside after the cessation of all treatment, and, in many cases, will entirely disappear.

MUSHROOM POISONING.

BY J. A. DAWSON, M. D., OF CHICO.

MR. PRESIDENT AND GENTLEMEN: Poisoning from mushrooms is so exceedingly rare, and so little is said by authorities concerning the nature of the poison, treatment, etc., and the effect produced by the different species is so entirely dissimilar, that a report of a case which occurred in my practice within the past month may be of interest to some members of the profession.

I was called Monday morning, at eight o'clock, to see three persons who, on the previous evening, at seven o'clock, had partaken of a savory dish of what was supposed to be edible mushrooms, but which proved to be a species of that fungi of a very poisonous nature. Two of the patients were large, fleshy men, of intemperate habits, while the third was slenderly built, and inclined to be delicate. The symptoms of poisoning were alike in all, except were more violent in the person of delicate constitution, who partook more freely of the repast than the others. We will confine our report to the history of his case. No uneasiness was experienced by the patient until three o'clock the next morning, eight hours after the mushrooms had been eaten, when symptoms of poisoning were manifested by great pain in the stomach and bowels, accompanied by violent vomiting and purging, which was very persistent and baffled all attempts at relief. The matter ejected from the stomach was of a liquid character, dark green in color, and when the stomach was emptied of its contents, there was great temporary relief; but this abnormal secretion accumulated very rapidly—as much as a quart would collect in the stomach in half an hour after everything seemed to have been thrown up.

There was an intolerant thirst, the patient demanding water all the time, which was given very sparingly, not in sufficient quantity to account for the enormous amount thrown off from the stomach every few minutes. The evacuations from the bowels were thin and light in color, closely resembling the rice-colored stools so characteristic in cholera. Clonic contractions of the muscles of the legs and the abdominal muscles occurred at intervals. There was no opisthotonos, no drowsiness or inclination to sleep; pulse weak and frequent, from 130 to 140 beats per minute; tongue very red on the margins; skin hot and dry. These symptoms continued for three days without abatement, when the vomit assumed a black coffee-ground appearance, occasionally sanguinolent. The ejections from the bowels were of the same nature. There was now tenderness over the epigastrium, extending over the abdominal surface; patient unable to retain but little on the stomach, and complained of pain when anything was eaten. The countenance began to assume a haggard appearance; great emaciation and loss of strength; troublesome hiccough; and on Friday, the fifth day after the toadstools had been eaten, the patient expired.

The autopsy verified the opinions of myself and the physicians who saw the case with me, that the poison exercised only a local effect upon the stomach and intestines, just as any irritant poison would do, and that the muscular contractions were not caused by any impressions made upon the nerve centers through the medium of the blood, but attributable only to reflex action caused by the intense irritation throughout the intestinal canal. The stomach was entirely denuded of the mucous membrane, and the muscular coats partially destroyed. The blood vessels were very much injected, and almost completely isolated. The duodenum and intestines presented the same appearance, and were filled with grumous matter. All the other organs of the body were found in a healthy condition.

The treatment in these cases was similar to that used in gastro-intestinal inflammation. Diet consisted of milk and

lime water, which seemed to agree with the patients better than any other article of food. Demulcent drinks were ordered instead of water. Ice was given whenever desired. A saline purgative was administered in the beginning, to clear the bowels of any irritating substance that might remain in them; opium and sub-nitrate of bismuth to allay irritation and produce sleep, or hypodermic injections of morphine when stomach was too irritable to retain the powders. Blisters were applied over the epigastrium, and warm hop fomentations to the bowels. Nutritious and stimulating enemata were resorted to every three or four hours, which were principally relied upon to support the powers of life. When the pulse became very feeble, hypodermic injections of brandy were resorted to, four drachms at a time being given, which never failed to increase the volume and force of the heart's action; this was only done when the stomach could not retain stimulants. As the tendency in all of the cases was to asthenia, everything was done to sustain the vital powers.

Two out of the three patients recovered after a severe and protracted illness.

THREE CASES OF PARACENTESIS THORACIS

BY W. S. THORNE, M. D., AND ROBT. CALDWELL, M. D.

CASE ONE.

Pyothorax treated by Aspiration and subsequent Free Drainage.

The patient, F. W., aged 25, native of Massachusetts, a man of medium height, slender, and of a light complexion, came under observation on January 10th, 1877. The left side of the chest was found distended, the intercostal spaces bulged out, absolute flatness on percussion, and no respiratory murmur whatever. The heart was to the right of the sternum, and the apicial beat two and one half inches below and to the left of the right nipple. He had considerable respiratory difficulty, and exaggerated respiration in the right lung. He complained of shortness of breath, especially on going up stairs; slight cough, without expectoration, and inability to sleep on the right side, having always to turn upon the left side before sleep could be procured. His appetite was good, and he was fairly well nourished, although some emaciation had evidently taken place. He had never suffered night sweats or rigors. Knows of no specific or hereditary taint in his family. Had always been strong and robust until the present sickness. Had been a pretty free liver, and had enjoyed himself as vigorous young men usually do. About eighteen months previously, while living in Boston, had contracted a cold which developed into a pleuritis, from which he was sick some time, and during convalescence his medical man sent him to the

Island of Nassau to spend the Winter. While residing on the island he improved rapidly in health, strength, and spirits, and at the termination of his residence considered himself a well man. On his return home, Mr. W—— called on his physician and requested him to examine his chest. The doctor remarked that he was looking so well that he did not think it necessary to make an examination, and so let him go. A short time afterwards he began to suffer from shortness of breath and slight cough, but sought no medical advice. His family, thinking that a change of climate would be more beneficial to him than a course of medicine, concluded to send him to California. On his arriving here Mr. W—— took up his residence on a farm near San Jose, where he lived on country fare and took regular exercise, until his difficult respiration and general weakness warned him to take advice in regard to his condition. It having been determined that the left pleural cavity was full of fluid, the chest was aspirated with a medium sized needle, between the eighth and ninth rib, near their angles, on the 29th of January. One hundred and sixty ounces of white sweet pus was evacuated. There was slight cough during the operation, which lasted one hour and a half. He stood the evacuation of such a large quantity of fluid well, although feeling quite faint afterwards. A dose of morphine was given and the patient left for the night.

January 30th—Pulse 84, cheerful and out of pain, tympanitic resonance over the entire left chest, appetite very good, quite a splashing of fluid can be heard on shaking, showing that all the pus had not been evacuated.

On the fourth day after the aspiration, Mr. W—— was in town all day, played a game of billiards, and was more comfortable than he had been for over one year. He sleeps well all night, can lie on either side, and his appetite has increased wonderfully.

On February 10th, an incision was made through the skin, between the seventh and eighth ribs, and a large trocar plunged into the chest. Thirty-two ounces of thick brown pus was drawn off. A counter opening was then

made between the eleventh and twelfth ribs at the back, on to the point of an iron staff projected against the intercostal space through the upper opening. An India-rubber drainage tube was now drawn through, and the two ends fastened together by means of a silk ligature. The wounds were dressed with sponges and cotton wool soaked in a five per cent. solution of carbolic acid.

For about one month after the operation he was very weak, the discharge was abundant, the appetite bad, the pulse ranged from 90 to 120, but the temperature never went higher than 102. The discharge never became fœtid, thanks to the free use of antiseptics and efficient drainage.

Iron and quinine were plentifully given, and also the strength kept up by frequent potations of milk punch. During the month of March he gradually grew stronger, his pulse became fuller, his appetite returned, and on the 21st of March he was enabled to go outside of the house. The rubber drainage tube was not removed until April 5th, when a short silver tube was introduced into the lower opening.

On the 6th day of May the discharge was only a little thick glairy pus, and the silver tube was removed. The patient had gained in weight, and had a vigorous appetite; the lung was expanded down to the sixth rib, and feeble respiration could be heard. The left chest has shrunken slightly. The heart has resumed its normal position. Up to the present writing he has been under observation, his health has remained excellent, and all the functions are carried on with vigor. A fistulous opening leads into a small cavity from which drains about a tablespoonful of glairy pus daily.

CASE TWO.

Hydropneumothorax, Pneumonic Phthisis, Paracentesis Thoracis.

In June, 1877, examined M. F——, aged 46. A year ago he had pneumonia, affecting the left side. His family record is good, but the patient has been irregular and dis-

sipated in his habits. His general health was restored in a measure after the attack of pneumonia, but there was always more or less cough. Six months since he had a copious hemorrhage, since which time he has had three slighter ones. The patient sits up very little, is weak, and has night-sweats. The respiratory sounds over the right lung are exaggerated, and broncho-vesicular percussion gives diminished pulmonary resonance at the apex. The heart is seen impinging against the chest-walls to the right of the sternum. On the left side the respiratory sound is amphoric, which sound extends as low down as the fifth rib. Below this point no respiratory sound is audible. Behind, in the supra and inter-scapular spaces, the sound is bronchial. Percussion elicits a high tympanitic note from the clavicle to the fifth rib, where it abruptly terminates in flatness. The latter sound follows a horizontal line when the patient is upright, and oblique when he is recumbent. Between the clavicle and fifth rib the tympanitic sound is intense and ringing, and the chest conveys a sense of elasticity to the touch. The voice is markedly amphoric over this region. The left chest is bulging and immobile as compared with the right. Pulse, 120, small; axillary temperature, 99 F.; respirations, 30.

Diagnosis.—Pneumohydrothorax and pneumonic phthisis. A few days subsequent to this examination, the patient was conveyed to town, a distance of twenty miles. Great prostration followed, with dry tongue, rapid pulse, picking of bed-clothes (carphologia), and muttering delirium. He remained four days in this condition, when he unexpectedly rallied, and in a few days was able to sit up a little. As soon as his strength permitted, the left chest was aspirated, and seventy-two (72) ounces of dark amber colored fluid was withdrawn. Amphoric voice and respiration was now more marked, and there was superadded to it a sharp metallic tinkling with each respiratory act. The upper and posterior part of the chest containing the compressed lung remained dull, and the respiratory sound bronchial in character. Patient much relieved by the operation, and can lie comfort-

ably on either side. The cough ceased with the withdrawal of the fluid. The month following the paracentesis, cough returned with abundant expectoration, and death occurred from exhaustion two months after the tapping. No autopsy was allowed.

CASE THREE.

Hydrothorax from Pleuritis—Aspiration.

F. M———, native of Mexico, age 27; was well until a month ago, when he took cold from exposure. He has had no pain, and very slight cough; thinks he has at times a little fever. He only feels ill from increasing weakness and shortness of breath. His pulse is 124; respirations, 24; and axillary temperature, 100½. The left chest is bulging, and the intercostal spaces obliterated. The respiration is bronchial between and above the scapula on the left side, and broncho-vesicular as low as the third rib, in front. The heart impinges against the chest to the right of the sternum. The vocal fremitus much greater on the right side, percussion gives flat sound from the clavicle to base of the lung. Four days after the first examination the left chest was aspirated, and one hundred and eleven (111) ounces, or nearly seven pints, withdrawn. No distress followed the removal of the liquid. The fluid was of a pinkish hue; specific gravity, 1020; on cooling, coagulated masses are seen floating through it. The day following the operation the pulse was 106; temperature, 99; respirations, 24; can lie on either side; has no cough; and feels better than he has for a long time. The respiratory sounds are now heard as low as the fourth rib.

Twenty-fourth day since the operation—The patient's condition has been uninterruptedly favorable.

REMARKS.

CASE ONE—Presents an example of what is improperly termed purulent pleuritis, the primary exudation being fibrino-serous, and its conversion into pus being a secondary result by the multiplication of leucocytes in some manner

not yet satisfactorily determined. The removal of so large a quantity of purulent fluid—twelve pints—at two operations, is believed a prudential measure worthy of imitation. The gradual removal of the pressure within the pleural cavity lessens the tendency to *hemorrhagia ex vacuo*, which usually takes place in cavities whence a large quantity of fluid has been suddenly withdrawn, and which hemorrhage is believed to ichorize the remaining fluid in cavities thus evacuated. The antiseptic dressings used during the treatment is believed to have been an important element in the final result. In purulent collections of the pleural cavities the gradual removal of the fluid by aspiration, followed by free incision and antiseptic protectives after all symptoms of the first operation shall have passed away, is thought to be a safe and rational mode of treatment in such cases.

CASE TWO—Presents an example of phthisis following pneumonia, attended by the somewhat rare complication of pneumohydrothorax, and the relief, and probable greater duration of life following the removal by aspiration of a large quantity of liquid effusion. Although no autopsy was obtained, the physical signs were thought to have been typical of the lesion, and to have confirmed the diagnosis.

CASE THREE—Presents an example of uncomplicated pleuritis, with large fibrino-serous effusion, and the immediate relief afforded the respiratory organs by its removal. It is a notable feature of this case, that there was an entire absence of pain, and a scarcely noticeable cough or fever; and that the symptoms of pleuritis were so obscure that an early diagnosis before the effusion became excessive, would hardly have been made without careful exploration of the chest, which is often omitted, as in case first. Indeed, it is confidently believed that there is no physical condition so constantly overlooked or wrongly diagnosed as *pleuritic effusions*, especially when the disease has been from the beginning chronic or subacute in character. The trophic and organic changes of the heart and lungs from the gradual encroachment of liquids within the pleura, are so disastrous

to the patient that no medical man can afford to omit the most rigid exploration in cases of supposed sub-acute pneumonia, engorgement of the liver or spleen with inability to lie on either side, and incipient phthisis suddenly developed in a previously healthy subject. Physical exploration of the chest often resolves these alleged disorders into simple pleuritic effusions, which, when timely relieved, prevent serious or permanent sequelæ.

It will be observed that in the three foregoing cases the disease occurred on the left side. The greater frequency of pleuritic inflammation of the left chest has been noted by Professors Fraentzel, Flint, and others, but the determining cause has not been thus far satisfactorily explained.

ON FETICIDE.

BY H. GIBBONS, SR., M. D.

Notwithstanding the earnest opposition of writers and lecturers and preachers and legislators, the practice of feticide appears to be on the increase. It is universally condemned. No one ventures openly to defend it. It is altogether repugnant to the moral sentiment of society. It awakens anxiety and apprehension for the future of the nation. It is becoming a constitutional disease, a *cachexia*, poisoning the blood and distilling its venom into every fiber of the body politic. In the contemplation of the subject, it has appeared to my mind to be much less an isolated vice than people are wont to suppose. There are certain practices and customs, certain opinions and modes of thought with which it is related, and which I propose to consider briefly in this essay.

Feticide is not a vice of ignorance. It prevails most among intelligent or half-taught people. It rather grows out of a certain kind of knowledge which has become popular in late years. In the estimation of our public guides, knowledge is the one thing needful in a State—the sum and substance of education. Knowledge is power, but power for evil as well as for good. If misdirected, it puts arms in the hands of the malefactor and makes him skillful in crime. There is more knowledge than ignorance in the parentage of feticide.

"Reform," is another watchword of mischief. What the great woman of France exclaimed on her way to the guillotine may well be said of *reform*: "Oh! what crimes are

perpetrated in thy name!" So much has the word been abused by schemers, and dreamers, and plotters, that it has almost become a stench in the nostrils. The cry of reform in religion, in morals, in politics, may well excite suspicion of selfish if not sinister purposes.

My hearers cannot have failed to observe the existence of a certain class of persons whose special mission is to diffuse a knowledge of everything belonging to the sexual organs, and to reform the marriage relation. The work is mostly done by lecturing, and the subject strikes a cord in the public mind by which a prurient crowd is attracted. Young ladies are taught to "know themselves," and are initiated into the mysteries of Lucina, and qualified to meet all the emergencies of life. Married women also become wise as "sage-femmes," and learn many arts that may be of service to them. Of course it is not the design to promote feticide. On the contrary, the practice must be condemned; but the pupils, nevertheless, acquire valuable knowledge on the subject.

In the days of our fathers, marriage and increase were left in charge of the affections. Men and women followed their natural impulse. They did not stop either before or after marriage to study the Malthusian arithmetic. Matches were made for life, for better or worse, and not on trial, as at present. The family increased without restraint and without anxiety. Parents were proud of their dozen children, like the Patriarch of the Hebrews—not ashamed of them, nor afraid of their starvation.

But the age of calculation has come. When men contemplate matrimony they take their slate and begin to cipher. After marriage they cipher again, in multiplication, we may say. The wife also calculates. The troubles and pains of gestation and nursing are taken into view. The temporary privation of social and fashionable enjoyment is considered. Friends are not wanting to inspire her with disgust of a large family. Children are a nuisance—at least until they are born, and it is only then that nature compels the mother's love. What a blessing that God has

made woman, in this respect, like the brute creation, and forced upon her the animal instinct of love of offspring! But for this, so prevalent is the hatred of family increase, that I verily believe child murder would be tenfold more common in our Christian land than it is in China.

My first recollection of any public movement under the name of "reform," directed to the marriage and family relation, dates back about fifty years, to the New Harmony settlement under the charge of Frances Wright and Robert Owen. In this socialistic community the marriage ceremonial was abolished, and parties married each other at will. It was only necessary to inform the "Council," and have the marriage entered on the minutes. The minutes were published regularly in the "New Harmony Gazette," the organ of the community. I well recollect reading in the minutes a record of the marriage of two individuals, one white the other a quadroon. The record ran thus: A. B. and C. D. "informed the Council that last night they began to live together"—this and nothing more. About the same time Frances Wright and Robert Dale Owen (son of Robert) engaged in a crusade against certain religious and social institutions, under the banner of "Free Enquiry." One of the publications circulated by them, written, I believe, by Owen, was entitled "Modern Physiology." It was founded on the Malthusian idea of the dangerous increase of population and the necessity of checking the increase, and it described minutely the several methods of preventing conception.

I scarcely know how to handle my subject without offending against esthetic laws; but I am reminded that the physician cannot always do justice to his patient if he is too much afraid of soiling his hands. The theme is of too great magnitude to warrant the glossing over of its strong points with doubtful language. My hearers will have no difficulty in perceiving the relation which such publications as that just referred to bear to feticide. Familiarity with preventives prepares the way for criminal abortion.

From the date referred to, onward to the present day,

through the long years of the half century, those who are old enough can trace the continuous stream of obscene feticidal literature through pamphlet and lecture, and more particularly in the newspaper press. But worse than all this is the secret stream which permeates society, flowing verbally in the family circle and among the unmarried, teaching how the wife may avoid becoming a mother, how lust may be gratified without penalty, how shame may be concealed by ante-natal murder.

That an inconsiderate and unrestricted increase of the family is often an evil, no one will deny. But it is nothing compared with the results of calculation and unnatural restraint. The Creator has planted in the human mother an instinctive love of offspring. What if that love be supplanted by hatred? What if the embryo, in the whole course of its development, be an object of aversion and loathing? Do you suppose the infant will possess a perfect and vigorous organization? Is there not, to say the least, an imminent risk of an impaired constitution, a feeble body or mind, a tendency to disease, suffering, and premature decay? I have no question that unwilling conception and detested gestation have many times marred the offspring, and that their sin against nature has been visited on the parents in the sickness and pain of body, feebleness of mind, or perversion of the moral sense of their children. Farther than this, it appears to me undeniable, that aversion to offspring, and the restraints imposed by it, if largely extant, must lower the national character physically, intellectually, and morally.

For many years, the average size of families in France has been growing smaller and smaller. The change has been effected through the same calculation and restraint to which I have referred as increasingly prevalent in our own country. At the same time there has been noticed a diminution of the average stature of the French people. Statesmen are disgusted and alarmed at the arrest of population, and the prospective deterioration of race. These facts ought not to be lost on the people of the United

States. Already it is demonstrated by statistics carefully collected, that in some sections, the increase of population depends on the foreign element, and that there is no increment from the native stock.

It is a universal law, that the poor increase faster than the middling and wealthier classes; in other words, that the increase is in inverse proportion to the means of support. The poor do not regard the burden of child-bearing. Gestation does not stand in the way of their pleasures, nor do they fret lest their children shall starve. Large families are often a source of profit to the laboring classes. I knew a little boy who was employed in a printing office, and whose parents resided near a cotton factory which engaged a large number of very young hands. The lad was one of eight children, and his employer, on learning this fact, remarked that so many children must be very profitable to the parents. They would be, was his significant reply, if they were all ten years old when they were born. And here is the difference between the rich and the poor. As the children of the poor grow up, they become sources of revenue to the parents, who find their interest in an unrestricted increase. Whereas, the children of the better classes—better because they have higher aspirations—are a source of increased expenditure. Hence one of the strongest inducements to feticide in married women, is wanting in the humblest walks of life.

And how does the future of the children of the rich compare with that of the children of the poor? Is there anything more uncertain—unless perhaps speculation in mining stocks—than success in life and business among those who set out with an inheritance of wealth? Take any given number of young men, say one hundred, who begin to-day the voyage of active life endowed with a competence, and the same number of the children of the poor, trained to toil, and with such schooling as all poor children in our republic can obtain, and trace their onward course to the middle climacteric, twenty-five or thirty years hence, and then call the roll. Shall we not find, think you,

that money has been a curse oftener than a blessing, and that poverty has furnished the stimulus which has inspired to triumphant effort? Read the biography of great men. Have not a large proportion become great in spite of adversity, and gathered from the seeds of difficulty a harvest of success?

Whatever deters from marriage tends to licentiousness, prostitution, and feticide. It is therefore better to promote marriages, even in the face of a lean budget and other considerations of policy—always presuming on the mutual affection of the parties. In royal families marriage is controlled by motives of state. There are few love matches among princes, and yet their marriage relations are not often unhappy. Providence has so organized the human character that when a marriage contract is formed even without affection, merely from motives of policy, it is impossible for the parties to cohabit without the development of a mutual attractiveness, if not of real love; *unless*, and here is an important condition, there be some inherent vice of organization, some infirmity of temper, in one or both, which would disqualify for all matrimonial alliance. Companionship is a natural want. The human heart, like a vine, is always throwing out its tendrils in quest of an object of attachment. I think it was Swift who expressed the sentiment that if he had no other object on which to place his affections, he would seek some vine or shrub, and cultivate and cherish it with all his heart.

Early marriages are not so apt to result from calculation and policy as those of riper years; but the latter end more frequently in divorce. The increasing frequency of divorces in our country is a source of much anxiety to the moralist. It is both a cause and an effect of vicious morals. When the divorce grows out of drunkenness, or licentiousness, or other flagrant vice of one of the parties, the case is clear; but incompatibility of temper, and some other alleged causes, should put both parties to shame. In some countries convicts are required to wear the letter T on their

backs. It might be well for divorced people to put the letter D to a similar use.

Phrenology also has offered its services in calculating the question of matrimony. With its calipers it measures the diameters and the nodules, and fits head to head in the holy alliance of hearts. There was a time in the rising glory of phrenology when its advocates fondly hoped that they had solved the great problem, and that the phrenologist would almost supersede the priest in matching the sexes—that he would at any rate precede in granting permits on the ground of fitness. But I have never known a marriage determined by cranial measurement, though I have known blockheads, male and female, whose fate in this regard was in the hands of the fortune-teller.

Then comes the pathological inspector, like an examiner for life insurance, who looks to the sanitary condition of the next generation, and refuses a marriage license to persons who may transmit disease, particularly pulmonary consumption. Whether persons of consumptive tendency should marry is a question of interest and importance; the parties, however, generally settle it for themselves. Marriage, among young people at least, is not commonly the result of deliberate selection. The first step is one of accident, and when a mutual attachment is once established, the question of health is ignored. Rarely has the prospect of disease and premature death broken the chain of love; on the contrary, it is more apt to awaken sympathy and rivet the links. How often do we see the betrothed rush with transport into each other's arms and seal the compact in the very presence of the angel of death! As spectators and friends we pity them, but they do not ask our pity, for they are but fulfilling the destiny of mortals, and finding in sorrow a deep and holy joy.

I have never been able to appreciate the sanitary law which would cut off from the privileges and enjoyments of married life all individuals of consumptive tendency. Consumption very often selects for its victims the brightest and best, the flower of the flock; females endowed with the

noblest qualities of the heart, and fitted to make the most affectionate wives, and the most devoted and exemplary mothers. And why should those whose hearts are the special depository of the affections, whom nature has made more than others capable of loving and being loved, why should they be arbitrarily excluded from that blessed union and companionship which may be essential to their happiness and to the perfection of their character?

The only answer is that the progeny is likely to inherit disease. But what if they do? Is it not a part of the general plan? Who knows but that society will derive moral benefit more than sufficient to compensate for the apparent physical evil? Death is never demoralizing. We pronounce it sad and sorrowful when youth is cut down in the early Spring. But the house of mourning is more congenial to virtue than the house of joy. Sorrow softens, and chastens, and refines the soul. The memory of the dear departed is a fountain of joy to the bereaved. To recall their fond image, to look back at their lives, to sit again with them in the family circle, to take to our arms their shadowy forms, to visit their graves and strew them with flowers—oh! there is virtue, there is happiness, there is religion, in communion with the dead.

Besides, the inheritance of disease from consumptive parents is by no means inevitable. A large proportion of children born of parents only one of whom has the pulmonary taint, escape the transmission. More particularly is this the case when the family is governed by sound hygienic laws. Nay, I have known more than one instance of complete and permanent immunity from pulmonary disease in the offspring of parents both of whose families were almost exterminated by disease of the lungs. On the other hand, how often do we see the disease developed where it cannot be traced to inheritance!

If the purpose of marriage were to develop the physical form and vigor of the race, or, in the plain language of the farmyard, to improve the breed as animals, then it would be well to single out certain classes of subjects and consign

them to celibacy. But bodily health and vigor is no guaranty of either intellectual or moral superiority. On the contrary, the virtues are more wont to dwell with corporeal frailty. Pulmonary consumption is not a disease of the inmates of San Quentin. Inducements and proclivities to crime are not associated with the tubercular diathesis. If sexual restrictions are to be imposed for the benefit of future generations, let the prohibition begin with the slaves of appetite and sensuality.

"But," I hear the whisper in the audience, "what has all this to do with the subject in hand?" I answer: Whatever tends to discourage marriage, and to remove it from the domain of the affections, and to make it the subject of calculation, tends in a greater or less degree to promote licentiousness, prostitution, and feticide.

Our age and our country, alive with free and busy thought, have given birth to a number of anomalies, if not monstrosities, religious, intellectual, and moral. Among these, not the least remarkable is the peculiar code of sexual morality known as "Free Love." According to this code, all legal, social, and conventional restraint between the sexes, when adverse to inclination, is immoral, licentious, and sinful. Connubial fidelity, when either party loves in another direction, becomes prostitution; whilst that which the world so stigmatizes, becomes, when prompted by natural affection, a virtuous and holy indulgence. The motto, "Highest Freedom is compatible with strictest virtue," embodies the doctrine. Translated into plain English, it reads: "Promiscuous intercourse is not necessarily immoral." Only one thing is required to chasten and purify it, and that is, the bond or motive of love.

Before me is a tract of thirty-two pages, very neatly printed, entitled "Social Freedom. Marriage as it is and as it should be." I take it to be a faithful exponent of the "Free Love" doctrines. It denounces marriage, "as now instituted," because it "binds the parties in the slavery of

ownership; refuses the soul the right of expressing itself beyond its imprisonment." That is to say, it enforces chastity. The requirements of fidelity in married life are denounced as "wolverine habits that go by the name of law and order." "Blasting slaveries," "social corruption," "hymenial adultery," "prostitution in the sight of God," and a multitude of like expressions, are constantly hurled in wrath and venom against the institution of marriage. "Will you," the writer asks, "will you, oh! man, be guilty of soul-murder by refusing woman the right of being the object of your love? Will you iron-case the crystal spring lest another thirsty soul may drink and be refreshed on the water of life? Love *me* only, is selfish. Love *me* only, is the voice of undisciplined and unspiritual passion. Love *me* only, is the sacrifice of the body and soul to lust." * * "If by my fidelity to love and faith the soul of my wife has become large and free, have I not reason to rejoice that others are blest by the sweetness and beauty of this flower of Eden?" etc.

Such is a specimen of the language and sentiment which characterize the "Free Love" literature. It is remarked by Buckle that the American mind is preëminently inductive. No *deductive* reasoning could possibly lead to such conclusions. There is no system of morality in Christian or Pagan lands from which such beastly deductions could be extorted. The creed is but the defense of the conduct. When men do wrong, or desire to do wrong, and are ashamed or afraid to own it, they set to work to frame a defense or an apology. They torture their brain to weave a veil that shall conceal them from their own consciences. Henry the Eighth determined to get rid of his queen, and in pursuit of the resolution, sought and found an excuse. The thought that she had been the wife of his brother, though it had presented no obstacle to his marriage with her, caused him, when he contemplated divorce, to shudder at his crime of incest. Henry was a royal free-lover, and ought to be canonized by the modern disciples of that faith.

Domestic quarrels, infidelity and divorces, are nothing

new in human history. Neither is the indulgence of lust. In a question of private vices, it is difficult to compare one period with another—to determine whether our own is worse than some past ages. When Chesterfield had completed the terms of a separation between his brother and his brother's wife, he wrote: "I have at last done the best office that can be done to most married people." This was more than a century ago. A celebrated English writer, referring to the same period, declared that a "woman of delicacy was not to be found in those days;" and again, "in those days every man liked his neighbor's wife better than his own." But vice was called vice nothwithstanding, and virtue, virtue. The marriage contract was sacred in theory, and concubinage was under the ban. It was reserved for our own times to stigmatize fidelity to the matrimonial compact as prostitution, and to invest libidinous indulgence with the robes of virtue.

That the advocates of the doctrines in question are strictly honest in their belief, will not be denied. The very absurdity and enormity of the doctrines is presumptive evidence that they are honestly entertained. When a man claims to be the Savior of the world, or the God of the universe, his sincerity is not disputed. Honesty is an essential element of fanaticism. There is more honesty, I am sorry to say, in fools and madmen, than in the average of rational men. The error of doctrine is of the brain, rather than the heart. The heart first strays from the path of virtue, and then the head comes in to prove that evil is good, and good, evil.

I have dwelt the longer and the more earnestly on this topic, on account of having my sympathies enlisted very recently in two families, whose peace and harmony have been destroyed by the free-love delusion. Only a single pair were involved by the wiles of the serpent of Eden. The modern serpent of "free-love," poisons the happiness of three living generations at once; bringing mortification and anguish to the aged, and an inheritance of reproach to innocent children. Let it be branded before the world as

a harlot, foul and debauched, clad in the garments of a Sister of Mercy.

The human family is subject to epidemic visitations, not only affecting the body, but the intellect also and the moral faculties. Delusions such as lycanthropy, vampyrism, and witchcraft, have overcome the popular mind, and reigned supreme for a season. At one time, honesty seems to have departed, and defalcation and fraud prevail. Again, the epidemic influence affects the moral character, and develops violence in the form of robbery, murder, and suicide. At such periods, we shudder at the great increase of evil and lament the degeneracy of the times. But if we look back to the past, we shall find that there is nothing new in the seeming retrogression, and that history is only repeating itself. Twenty-two years ago, an English writer * penned the following statement having reference to crime in Great Britain: "It is very difficult to refrain from the conclusion that we are, just now, living in the presence of an increased accumulation of greater crimes than has been before witnessed by the present generation. We do not forget the notorious criminals of the first portion of the present half century, the Thurtells and Fauntleroys of that day; but there was not that fearful constellation of crime, as we may term it, which we witness in these days, and which almost every week increases, by some deed, which, either in the depths of the sin, or the rank of the sinner, shocks and distresses the whole nation. Murders, forgeries, suicides—suicides, forgeries, murders—to say nothing of other sins, have come upon us alternately with fearful frequency, and in high places as well as low. No sooner has one case spread over the whole kingdom, than another occurs to eclipse it, or to dispute a place with it in the public mind. The legislature, commerce, the race course, the private family, alike contribute to swell the list. The single apartment of the working classes, and the stately halls of the aristocracy, are equally the scene of lamentation, mourning and woe."

* "English Churchman," quoted by Elam, in "A Physician's Problems."

That the fatherland could so lately exhibit a picture equal in the darkness of its hues to that which our own crime-stricken country now presents, may serve to lighten the load of despondency which weighs down our hearts in view of the prevailing epidemic of fraud and crime.

It is well to study the influence of epidemic mental perturbations on moral conduct—the effect of certain "agitations," as they are called, on the prevalence of vice and crime. We have seen very lately a "hemp" agitation, in which violence has been openly and continually threatened by one class against another. Fire and slaughter have been proclaimed habitually amid the applause of thousands, and the daily press has served up to the people every morning the incendiary hell-broth, until even our children have grown inured to the vocabulary of felons, and familiarized with the idea of violence and bloodshed. What wonder that such schooling should train up an army of robbers, garroters, and murderers! What wonder that the burglar is emboldened to enter our dwellings at noonday! What wonder that our citizens walk the streets under peril of their lives!

Of a different character, but equally diffusive and potent, is the influence on private morals exercised by the host of clairvoyants, mesmerists, astrologers, fortune tellers, trance mediums, healing mediums, materializers, and spiritists of all kinds, whose numerous advertisements in the newspapers, and announcements of lectures and exhibitions, sufficiently attest the profits of their jugglery and the abundance of their victims. Spiritism has now been on trial for thirty or forty years, and there has been ample time to develop its good, if there be good in it. And what has it done? What has it given to the world, of science, of morals, or of material value? It has revived old superstitions and developed new ones. It has crazed no small proportion of its devotees, and bewildered and intoxicated a still larger number—for it is of itself a sort of psychical drunkenness. It has resuscitated the effete necromancy of Paganism, and distributed over the world a crowd of strolling jugglers, to

desecrate the memories of the venerated dead with the tricks of legerdemain.

Far be it from me to charge spiritism with a direct agency in the production of feticide. I speak of its indirect and incidental operation. "Tell me your company and I'll tell you who you are," says an old adage. We judge of men and things by what they bring with them, as well as by what they do and what they are. Food, otherwise nutritious and wholesome, may convey into the body the most pernicious parasites. A neat housewife will scarcely welcome into the parlor her best friend, if his boots be covered with mud. An angel would scarcely gain admittance if, were such a thing possible, he were covered with vermin. I charge upon spiritism that it is infested with vermin; that its garments are covered with parasites; that it and its concomitants debase the character and standard of the popular faith and the popular logic, substituting visionary speculations for science, dreams for truth, and the illusions of fancy for the realities of life; that it peoples society with professional mountebanks and impostors; that it builds a nest that receives the egg that hatches the serpent that tempts the woman to put to death her unborn offspring.

Another department of the literature of feticide is the newspaper press. Abortionists find profit enough in their nefarious trade to pay well for advertising. Of course they do not say openly what they mean. They dare not do so, nor would the newspapers admit their advertisements if they were put in plain English. But there is a flavor in these announcements as significant to lechers and prostitutes, and to "unfortunate females," so called, and to married women who possess not the womanly nature—a flavor as easily detected as the scent of the master's foot by the hound. All advertisers for the cure of "private diseases" and "weaknesses," may be set down as abortionists; and not only so, but as the most unprincipled and villainous of the entire class. Under the guise of "removing obstructions," the hint is conveyed; or by the hypocritical caution, "not to be taken during pregnancy."

Instruments for preventing conception are extensively advertised. A few years ago several hundred instruments of this kind were sent by mail from the East addressed mainly to respectable married ladies in San Francisco. The Postmaster, having discovered their nature and design, refused, under instructions from Washington, to deliver them.

It is lamentable that this obscene literature of the newspaper press cannot be kept out of the homes of the families of our people. There are a few papers which exclude them, but they are few. It is not to be expected that the laws and customs of trade should yield to considerations of virtue and public good in the face of the millions of dollars annually paid to subsidize the press directly and indirectly, to the advocacy of prostitution and feticide.

But what excuse can be made for the admission of such advertisements in religious periodicals?—for it can not be denied that the religious newspaper press is largely contaminated by advertisements which are positively mendacious on their very face, if not obscene and otherwise immoral. It is sometimes alleged that the religious editor has nothing to do with the advertising department and is therefore not responsible. He yields a pious obedience to the injunction not to let his left hand know what his right hand doeth. His religion is that of the robber who condones with his conscience by giving to the church half the proceeds of his crime.

An impression prevails very extensively among women that the life of the embryo begins only with its sensible manifestations; that up to this period the condition is equivalent simply to an arrest of the menstrual function, and that the function can be restored by certain medicines. Ignorance in these matters is to a great extent voluntary and self-imposed. Women who are bent on defeating the course of nature enjoy a delusion that puts the conscience to sleep. Pains should be taken by professional men to inculcate the truth in these respects—to teach that the life of the embryo begins with gestation—that its destruction

at any stage is criminal—that this can be accomplished only through violence done to the mother—that the attempt always endangers her life, and that success in the design is liable to be followed by uterine displacements and disorders which break down the health, and are likely to impose on the offender against the laws of nature a life-long sentence of torture.

Worse even than ignorance is the character and quantity of knowledge concerning the sexual physiology disseminated through the press either in newspapers or in pamphlets and books more or less privately circulated, or imparted by itinerant lecturers. There are men and women who appear to possess a buzzard appetite for such moral carrion, and who revel in the fetid atmosphere. Their teachings invite a class of persons who seek the knowledge only for sensual and vicious purposes; who gather poison, not honey, from the flower; who realize the idea of the danger that may flow from "a little knowledge." To such inquirers after truth it is a matter of great interest to learn that there is a period in the course of her mensual cycle when the female may be approached with impunity. There is no question that this idea, false as it may be regarded practically, has led to a great amount of seduction and prostitution.

Feticide then, in its aggregate form, is the final result of many influences more or less remote in their origin, diverse in their character, physical and psychical, open or disguised, tolerated, encouraged, or condemned by society. Among these we enumerate aversion to marriage, fear of the pains and perils of child-bearing, ante-maternal hatred of offspring, calculation of the cost of rearing children, unmotherly objection to large families, newspaper advertisements and other emanations from the press, the obscene literature of "free love," the delirium of spiritism, the impulse of passion, the concealment of shame. From these seeds the sacrifice of a million of human germs is the bloody and exhaustive harvest which our nation suffers year by year.

In presenting this subject I have labored under constant difficulty, in the endeavor to express myself intelligently and emphatically without the use of language offensive to good taste. The theme is in itself so disgusting that nothing short of necessity would justify its public discussion. It is a painful acknowledgment that such a necessity exists.

REMARKS ON THE THEORY AND TREATMENT OF DIPHTHERIA.

BY J. T. WELLS, M. D., OF BAKERSFIELD.

The unprecedented prevalence of the dreaded malady diphtheria, during the past year, has induced me to place before you a theory, on which is based a treatment that has been remarkably successful, and which I have been forced to adopt from careful observation.

If, as is the recognized theory, this is a zymotic disease, with constant pathological symptoms, and if the exudation and blood of diphtheritic patients *always* contain the different forms of bacteriæ, which appear to be merely different stages of development of the same germ, it seems strange that some bactericide could not be found by which the ravages of this pestilence would be controlled; but among the multitude of treatments adopted there seems to be no remedy on which we can rely with as much hope and confidence in the treatment of this disease as we do in almost every other disease amenable to treatment. The theory that this disease is produced by "insufficient drainage" will not obtain in the country, where it has been more prevalent and fatal than in cities, for up in the foothills of the Sierras where drainage is perfect, where the clear water from the melting snows comes rushing down its pebbly bed where no malarial complications ever exist, where the atmosphere is pure, or impregnated with the odor of the pine, even at and above the snow-line, it has reveled in its mad havoc, and taken off most of the brightest and healthiest children attacked.

It must then have some other ætiology whose nature remains to be more fully investigated and demonstrated

But that it is a blood poison of the most virulent type there should no longer remain any doubt. Eberth, in Ziemssen's Cyclopædia, Volume I, page 592, says: "Without micrococci (spherical bacteria) there can be no diphtheria." Again, in Volume III, of the same work, in speaking of anthrax in animals and man, both Virchow and Hensinger regard that ceptic contagious disease, in which a single drop of blood was estimated by Davaine to contain from eight to ten millions of bacteria, as due to a specific ferment by which these bacteria are formed, and the oxygen of the blood by these consumed. The same authority also states that the millionth dilution of such a drop of blood will produce anthrax. Also, "whether these germs originate from the soil, or becoming dried up, as the remains of a case of the disease, adhere to some object, sooner or later they get free by some mechanical influence, or by accidental contact become mixed with water. Small and light, they are wafted by the breeze, and are either directly breathed in, or they fall upon the fluid or solid food and with it enter the body. Such bacterial germs suspended in the air may be washed down by rain, or conveyed to a great distance (by wind) and deposited in any place whither chance may carry them."

The same, or a similar theory is claimed of diphtheria, viz: that it is essentially a blood poison of the most virulent type, a constitutional disease, a morbid process of fermentation in the blood induced by the introduction or formation of micrococci, either by exogenous or endogenous methods, by which the temperature is increased first, the physiological and chemical changes in the blood and tissues are gradually intercepted, altered, or replaced by the exudations containing these germs. I cannot regard it as a local disease with a subsequent ceptic contamination of the blood, brought about by the absorption of the so-called putrified membrane, for fever is *always* present *before* the exudation appears, and *local manifestations of the disease are not even always present.* I have often seen severe diphtheritic fevers, with every symptom of the usual form of the

disease present, except the coating on the tonsils, developed in children, and in adults in some instances, while other members of the same family were suffering with diphtheria, and in others, subsequently to their recovery from the disease.

Again, it cannot be regarded as a local throat disease, because the tonsils and palate are by no means the only parts of the body on which the exudation appears. In a recent case of malignant diphtheria, I saw the false membrane on the mucous membrane of the vulva and rectum, and I have often seen it on the hands and legs where there happened to be a small cut or sore when the disease appeared. What part the estimated million of sheep that have died, decayed, and impregnated the air of the San Joaquin Valley during the past year, has played in the production of this disease, is a subject worthy of consideration and investigation.

The real object of this paper, however, is to briefly consider why the tonsils are most frequently affected in this disease, and its treatment. The tonsils are less protected than almost any other gland or organ in the body, being of a very delicate, spongy, histological structure, and being covered by one of the thinnest and most delicate mucous membranes in the body, exposed to friction in deglutition, and in all movements of the tongue, and to different temperatures and currents of air loaded with dusts and germs, are rendered thereby more susceptible to the action of any morbific agent; and so we find the tonsils in the vast majority of persons of all ages, from dentition to age, the seat of a low grade, painless, catarrhal inflammation (aside from their being nearly always affected in ordinary coughs and colds and measles), which inflammation eventually destroys their shape and size, leaving them irregularly excavated, or entirely destroyed, so that very often no vestige of them remains between the pillars of the fauces.

From statistics kept by me during the past year there is not one child of four years old in every five who has healthy tonsils, and not one adult in fifteen. These data are taken

from children and persons who claimed to have perfectly healthy tonsils, and who, to their knowledge, had never had any throat disease. Whether this condition exists in other parts of the State or not I have not ascertained, but in the southern part of the San Joaquin Valley such is the fact. Being then in the majority of cases in a preëxisting pathological condition, the tonsils offer less resistance to any toxic influence of the blood, and the exudation is rather facilitated than retarded on them, and appears there first.

In accordance with the above theory I use but little, and in many cases no local treatment, consisting of a mild astringent and antiseptic gargle, containing sulphurious and carbolic acids with alum and tincture of cinnamon, carefully avoiding all irritant and caustic applications to the throat, but rely solely on the administration of quinine, salicylic acid, and tincture of iron, given in heroic doses, in syrup or glycerine; and if this combination is not well borne by the stomach, as is frequently the case, I give quinine alone, and to obviate the unpleasant taste I first let the patient hold in the mouth for a few moments a little tincture, fluid extract or strong infusion of yerba santa, which, by coating over the papilæ of the tongue, entirely and most effectually prevents any bitter taste, and enables the child to better take and retain the medicine.

The following is the prescription I frequently use as a prophylactic, and in the treatment of the disease:

℞:
Quiniæ Sulph., ʒiiss.
Acid Salicylic, ʒi.
Tr. Ferri-chloride, ℥ss.
Syr. Simplicis, q.s. ℥viii.
Signa: Give a tablespoonful every hour until some deafness supervenes.

As a prophylactic: A teaspoonful morning and evening.

If the pulse and temperature are high I increase the quinine proportionately—the higher the fever the larger the dose—I often give as much as from ℈i. to ℈ii. of quinine

to a child five or six years old at one dose, and never rest satisfied until the patient is cinchonized, however small or great the quantity to produce this effect is required. If it is rejected by the stomach I give it per rectum, and it will be observed that there is an astonishingly unusual tolerance to quinine in this disease, requiring frequently as much as sixty or one hundred grains to produce ordinary cinchonism. In a recent case of an adult, I gave one hundred and fifty grains in twelve hours before any characteristic effects of its administration were produced.

The anti-pyretic effect of quinine is as palpable and as well proven as its anti-periodic effect, and is accompanied by a *sedative* effect on the nervous system, and when anti-pyretic doses of quinine are given, when the fever of diphtheria is *subdued* by it, and *not abated* as by the ordinary "fever drops," the temperature does not rise again, and the patients rapidly recover if the effects of the quinine are perpetuated for 24 or 48 hours.

In another recent case of malignant diphtheria, a boy six years old, whose tonsils, palate, and pharynx were coated with the false membrane, whose pulse was 140, and temperature 103°, I gave 30 grains of quinine at the first dose, and in three and a half hours I had the satisfaction of seeing the temperature reduced to 98°, and the pulse to 100 per minute, and the only unpleasant effects produced by such a large dose was a reflex nausea; and the effects beginning to pass off in eight hours 10 grains more were given per rectum, and repeated in four hours. This child had no more fever during the entire course of the disease, because the blood poison was arrested, the bacteriæ in the blood were destroyed and their formation stopped, and the disease converted from a constitutional blood poison into a local throat disease, which only remained to be treated by the gargle.

If, in the antidotal treatment of poisonous snake-bites, we are justified in administering from one to two pints, or even more, of alcoholic stimulants to a child that under ordinary circumstances would be inebriated by one ounce

and poisoned by a gill, *is it not rational* that in the treatment of diphtheria—a blood poison *more rapidly fatal*, for it kills children in from forty-eight to sixty hours—we should use equally heroic measures? From three to six grains of quinine at a dose have no more efficacy in subduing the blood poison of diphtheria than has one or two spoonfuls of whisky in subduing the poison of a rattlesnake bite, and children that recover under such treatment would, in my opinion, get well without any treatment, for diphtheria is a disease that presents itself to us like scarlatina and measles, in different degrees of intensity, often requiring little or no treatment, and at other times most rapidly fatal, dependent upon the activity and rapidity of the process by which the bacteria are formed—a specific ceptic fermentation—by which process I believe the poison of diphtheria to be caused and propagated, and which I am confident that quinine and salicylic acid will prevent and arrest in the system as well as out of the system if heroic doses are given internally (cinchonism produced), or if saturated solutions are used out of the system it destroys the vitality of the yeast plant—bacteria.

Out of thirty-five cases treated in accordance with the above principles all have recovered, and I have not seen a case that died after cinchonism had been produced in the first twenty-four hours of the attack.

The most rapidly fatal cases of diphtheria that have come under my observation, are those that begin with vomiting, in which the stomach seems to be the organ primarily attacked, and the more unsettled the stomach, the less favorable the prognosis In these cases, all medicine and food should be given per rectum, and the vomiting allayed by Hope's camphor mixture, which seems to exercise a most beneficial influence.

Sincerely believing that the adoption of this treatment will save the lives of many promising children, I submit it for your calm consideration and trial.

DOCTORS AND LAW-MAKERS.

BY Q. C. SMITH, M. D., OF CLOVERDALE.

It is with extreme diffidence we approach this much hackneyed subject; and more especially so, being aware that the views we entertain concerning this absorbing topic are diametrically opposite, in some respects, to those published by many of our fellows. And, although we have heretofore faithfully and loyally labored with them—and will continue to do so—in pursuance of such lines of policy as the majority dictated, yet we must say, in justice to ourself, that our own judgment has long differed from the views held by those of our professional brethren, who seem to think that if legitimate scientific medicine is to flourish, and honorable physicians get an honest living, we must seek higher legal recognition as a profession, and more secure legislative protection as individual practitioners. Or, in other words, they would have us say to the public, by our actions, that our professional labors possess no substantial real merit of importance to the people at large; but that we, as a profession, are merely *ornamental parasites* upon the body politic. That we, like a tender exotic, cannot withstand, unprotected, the withering effects of impartial public opinion and action. And that, therefore, we should go supplicating around legislative halls, crying: Have mercy upon our poor helpless condition, oh, our mighty Lycurgus-fathers! for if we are not speedily and surely succored, and protected from the ravages of the devouring horde of insociable quacks and charlatans, our worthy and valuable profession will soon be utterly destroyed from off the face of the earth!

Now we cannot doubt, for a moment, the honesty or high honor of any professional brother who has led or joined in the popular appeal for more legislative protection for individual members of our profession. But we certainly do doubt the *wisdom* of such policy. And to say that it has been utterly futile would certainly be putting the case very mildly. And as long as the supplicative policy is pursued, the *populace* will continue to *imagine* that regular physicians are endeavoring to get a *corner* on the practice of medicine. And until the minds of the masses are entirely disabused of this false and pernicious idea, our efforts to get them to assist us in abating quackery and other public nuisances, and to lend efficient aid in carrying forward sanatory reformatory measures in general, to their practical application, we will, as a profession, be unable to successfully apply many of the best ideas pertaining to State as well as clinical medicine.

And the utter failure of the efforts physicians, unassisted, have made to abate quackery and many other great public nuisances, it seems to us, should certainly be sufficient proof to convince any unbiased mind that the supplicative line of policy, as for years heretofore pursued, will ever continue to be unsuccessful, to say the least of it. For it is certainly very humiliating to any regular honorable physician to be taunted with the idea that he is at the mercy of quacks and charlatans. As for our own individual part, we have ever made bold to say, whenever an occasion offered, at home or abroad, that we live, professionally, above and in open defiance of quacks and quackery, the whims of the populace to the contrary notwithstanding. For we consider the regular, honorable, live working physician as an indispensable requisite to civilized society, as the farmer, mechanic, or school teacher.

We know it is easy, and too common to find fault with the existing state of affairs, in regard to any measure or subject; and it is with great reluctance that we play the

role of fault-finder in this matter. And did not a consciousness of a high sense of duty, both to ourselves as promoters of free honorable scientific medicine, and the general weal of public interests, impel us to raise our voice in opposition to the clamoring tide, we would have certainly remained silent.

Certainly, scientific medicine of to-day is able to cast aside the swaddling clothes of helpless infancy, and don a more dignified costume than the puerile and hampering trappings of so-called *legislative protection*. For indeed, in the past history of medicine, nothing stands forth more prominently to the mind of the contemplative philosopher, or presents so saddening a feature to the sensibilities of the true devotee of Esculapius, as the significant fact, that in every country and in every age which could be classed as *protective epochs*, our noble science, while existing under the protective ægis of kings, potentates, or legislative powers, steadily declined in grandeur, stagnated or retrograded in progress, and diminished in usefulness.

These facts, and many more of a similar character and tendency, being historical and incontrovertible, does it not become our bounden and sacred duty as representative physicians of the present day and hour, to take heed to the instructive lessons that misguided zealots of the past have left us, the results of which so sadly mar the otherwise bright pages of scientific progressive medicine? For indeed, our worst enemies have been of those of our own household. The pages of history are luminous with evidence that indubitably proves that the more that honorable scientific medicine is hedged about with so-called royal or legislative protection, the more it becomes circumscribed in its capabilities, hampered and curtailed in its beneficent functions, dwarfed in its energies, shorn of its glories, and thus cruelly crushed by the suicidal acts of its own children. For the so-called protection of honorable scientific medicine, be it from royal signet or legislative seal, has ever resulted in oppressing and fettering honorable physicians, and in giving legal license and increased influence

and respectability to soulless demoniacal quacks. And so it will ever continue to be, for human nature will ever be the same, and history from age to age has and will ever continue to repeat itself. And as we have sailed as a profession in our own day and country for many years on the supplicative tack, and now find ourselves even farther from, rather than nearer to the desired haven, would it not be in keeping with the dictates of philosophy and common sense to change our tack and tactics?

Being fully conscious of our inability, individually, to originate and elaborate the best plan that could be devised for the accomplishment of the desired end in this matter, we would most respectfully merely suggest some of the salient points in outline of the policy which we would deem, if put in force, most likely to accomplish some of the desired results. To that end we would say, physicians as a collective representative body should confer together, from time to time, and elaborate and set in order such ideas and plans as pertaining to sanatory medicine in its different departments, in its practical application to the needs of the country at large and to the different parts of it, that if faithfully carried out in the proper way and manner, would be most likely to produce the desired result. And at the proper time said plans should be laid before our legislative authorities with an earnest request that they promptly examine into the merits of the same, and take such action thereon as they may consider most likely to conduce to the best interests of those whom it is their bounden duty to faithfully represent. And accompanying aforesaid plans and request, should be a most emphatic declaration that we, as regular practitioners of honorable medicine, neither need or ask any favors or protection from legislative authorities other than is granted to citizens of any other class or vocation. And as for quacks and quackery as public nuisances, tell our law-makers most distinctly, that having done our duty as physicians, the blame will then lie at their door if those whose dearest interests they have sworn to foster and protect are cruelly robbed of their gold, and worse still, of

that which gold cannot replace, omnipotent as it is, good health.

And further, that we, as a profession, and as individual practitioners of honorable medicine, are abundantly able to take care of *ourselves* without the fostering assistance of any special class legislation in our favor. In times past we have, as a profession, in the earnest warmth of our impulsive zeal, but with honest intent and noble purpose, too long labored at great sacrifice to bring about the much to be desired reform in regard to the regulation of the practice of medicine. And with what utter want of success; we have only to look up and down throughout our common country for the disheartening and mortifying answer, which is certainly very strong evidence in favor of the line of policy we advocate; *i. e.*, that we, as a profession, should have maintained a bold, independent attitude in this matter, and have left the execution of such laws as may have been enacted for the purpose of regulating the practice of medicine, and the abatement of quackery and other public nuisances, entirely to those whose legitimate business and sworn duty it is to see that they, in common with other laws of the land, were faithfully obeyed. For such functionaries only have the power to enforce obedience or receive proper remuneration therefor, neither of which obtain in the case of physicians.

And as to the matter of honorable physicians using their professional influence at home, to get political place and power, or encouraging and assisting the "lobbying a bill through the Legislature," it seems to us that they, in so doing, must most foully smirch the fair habiliments of honorable medicine. And such a course seems more reprehensible still, when we consider that the results of such detestable action are far worse than a nullity. Of course, we refer to characters and not to particular individuals.

But notwithstanding what we have said, we would not have physicians, either individually or as a collective representative body, to idly sit with folded arms, stolid spectators of the monstrous impositions that are daily being

practiced upon our unfortunate fellow-citizens, regardless of the fact whether or not said unfortunates were the active or passive agents in the cause of their own injury or ruin. Far from us be an intent so sordid, or a design so basely avaricious. For we are strongly persuaded that much of the want of confidence that the common public manifest toward regular medicine, is the legitimate result of the errors of policy or practice heretofore carried out by regular practitioners. For you will remember, that it is regular, honorable, live working physicians *only*, whom we have adjudged to be an indispensable requisite to society, or worthy of the esteem and confidence of their fellow-citizens. For the greatest delight of every true disciple of Esculapius consists in ceaseless effort to perfect himself in the various branches and resources of the healing art, that he may thereby enable himself, by a diligent application of the same, to relieve or prevent the greatest possible amount of human suffering.

REPORT OF COMMITTEE ON NECROLOGY.

BY BENJ. R. SWAN, M. D., OF SAN FRANCISCO, CHAIRMAN.

It becomes my duty to report to you, that since the meeting of the society in April, 1877, two of our number have passed away.

The first in order. JOHN CHARLES VAN WYCK, M. D., who died at Oakland, August 19th, 1877.

The second. PHELPS CHAMBERLIN, M. D., who died at San Francisco, October 19th, 1877.

Besides these, I have not learned of any other case.

It will be remembered that both Dr. Van Wyck and Dr. Chamberlin were Chairmen of their respective committees; and in the printed transactions of the society, 1876-7, are to be found the report on "Prac-

tical Medicine," by the former, and the report on "Obstetrics," by the latter.

Believing that something more than a passing notice was due the memory of each of these gentlemen, and that it would accord with the wish of the society, I asked Dr. Clinton Cushing of Oakland, as the one best fitted, to pay a tribute to the memory of Dr. Van Wyck, and Dr. Henry M. Fiske of San Francisco, to the memory of Dr. Chamberlin.

I am happy to say that each responded, and the memories forwarded to me are herewith presented:

JOHN CHARLES VAN WYCK.

The subject of this memoir was born in Baltimore, Maryland, January 1st, 1828. At the age of eighteen he began the study of medicine in the office of the late Dr. Nathan R. Smith of Baltimore, and graduated at the University of Maryland in 1848, in the same class with Dr. Cabanis of Siskiyou, and Dr. Hammond of San Francisco. He was one of the attending physicians at the Baltimore Almshouse Hospital for some time, and practiced his profession for a short time in Louisiana, and afterwards in and near Baltimore until 1863, when he came to California, and after spending a year in the silver mining region of Nevada, he settled down in Oakland, where he practiced medicine until his death, August 19th, 1877.

He died suddenly while in almost perfect health, of angina pectoris.

Dr. Van Wyck's tastes were in the direction of surgery, and at the time of his death he held a leading position in that department of medicine in Alameda County, and had probably performed more capital operations than any man in the county at the time of his death.

He became a member of the State Society at its reorganization in 1870, and was a regular attendant at its meetings. He also contributed numerous scientific papers to the society, which will be found in the various printed transactions; and at the time of his death was one of our Board of Censors.

He was also one of the most active and zealous members of the Alameda County Medical Association, was one of the original founders, and was among the first Presidents of the organization.

To those who knew him well, to speak of his many good qualities would be superfluous; but it is only just that the members of this society should know that we have lost a member whose character was above reproach, one whose friendship was unfailing, and a man who was the very soul of honor.

Many were the deeds of charity and kindness that I have known him to do, and his liberality and generosity were only limited by his means.

Dr. Van Wyck was a consistent and conscientious member of the Episcopal church, and he died as he had lived, an honest, upright, warm-hearted, Christian gentleman.

PHELPS CHAMBERLIN, M. D.

Was more than an ordinary man. Born in Northern Vermont. At an early age, half-orphaned, and while yet of tender years, compelled to labor for the support of a widowed mother and helpless sister, the lessons of hardship and endurance he then received were of great benefit to him in after life. His primary education was wholly obtained in the country schools of those days, and in them he studied assiduously during the short Summer and Winter terms, laying the foundation of the mental structure that was to be the basis of his future life-work. Early he formed the design of studying medicine, and commenced it with an uncle then residing in the new section of country called the American Bottoms, in the State of Illinois. While intensely pursuing this favorite study, the gold fever then raging throughout the world seized him, and in the Spring of 1849, with a company of emigrants he left for California, crossing the plains with ox teams, himself being one of the drivers. They entered the State by the old Carson trail, and pitched their tents at Hangtown, now Placerville. As a miner he was successful, and in 1851 he returned East to prosecute his studies; in 1852 he graduated from the St. Louis Medical College, and in the Fall of that year he returned to California, relocating at Placerville, where he became a successful practitioner, and so enjoyed the confidence of his fellow citizens of that then large and flourishing city, that he was frequently elected Mayor. When the silver fever of Washoe broke out in 1859, he recrossed the mountains with his family, and settled in Genoa in the then Territory of Utah. On the organization of the Territory of Nevada, he was elected one of the first Councilors. He took an active part in the organization of the Territory, as well as the organization of the State—thus making him a pioneer of both California and Nevada. Some twelve years since he removed to this city (San Francisco) and commenced a medical career which is well known to the physicians of the State. He was always eminently successful as a practitioner. For all, he ever had a kind word and a pleasant smile. His acts of charity and benevolence were numerous, and it is safe to say that none ever appealed to him for help who were worthy, who were turned away empty-handed. He was in every sense a kind husband and father, a genial and pleasant gentleman, a model and faithful physician, and an honest man.

As a warm friend and admirer, I could not say less; as a physician, one who has been associated with him for twenty-five years, I can testify that I knew him well, and his affabilities and pleasantries now come up to me through that long time re-testifying to his ability and worth.

I. E. OATMAN, TREASURER, in account with CALIFORNIA STATE MEDICAL SOCIETY.

1877.	Dr.			1877.	Cr.		
April 16.....	To balance brought forward.....		$660 37	April 27.....	By cash paid Dr. Tyrrell, as per vouchers—$2 50, $14, $7 93, $4 10, $40, $100, $6 55.....	$175 08	
April 27.....	To cash per Dr. Tyrrell—dues.....	$740 00			By cash paid advertising, Record-Union.....	6 00	
October 2....	To cash per Dr. Tyrrell—dues.....	160 00		May 2.....	By cash paid W. A. Grover, M. D.	100 00	
October 2....	To cash per Dr. Tyrrell—sale of Transactions.....	3 00		May 23.....	By cash paid H. A. Weaver, printing account.....	100 00	
1878. April 13.....	To cash per Dr. Tyrrell—dues.....	35 00	938 00	July 14.....	By cash paid H. A. Weaver, printing account, balance.....	266 40	
				October 17...	By cash paid Dr. Tyrrell, postage stamps.....	3 00	
				1878. March 11....	By cash paid Jas. Simpson.....	250 00	
				April 13.....	By cash paid Dr. Tyrrell, as per statement and vouchers, viz.:		
					Wrapping paper.....	$ 40	
					Printing.....	3 00	
					Stamps.....	8 00	
					Stamps.....	15 00	
					Certified copy articles of incorporation.....	3 25	
					Printing.....	8 00	
					Stamps.....	5 00	
					No voucher—stamps.....	1 00	
					No voucher—expressage	40	
						44 05	
							$944 53
				April 16.....	By balance.....		653 84
			$1,598 37				$1,598 37
April 16.....	To balance on hand.....		$653 84				

ANNUAL REPORT OF C. M. BATES, M. D.,

Treasurer of the State Board of Examiners of the Medical Society of California, to the Honorable Board of the Medical Society of the State of California, for the year ending April 15th, 1878.

	CASH RECEIPTS.			CASH DISBURSEMENTS.	
1877.			1877.		
April 15.....	To cash on hand.....	$2 42	Sept. 13.....	By cash, Evening Bulletin.....	$7 00
October 13...	To cash, vouchers from Dr. Gibbons.....	32 15	Sept. 13	By cash, Daily Record-Union.....	6 00
October 13...	To cash, vouchers from Dr. Gibbons.....	18 85	Sept. 13.....	By cash, H. P. Babcock.....	10 00
Nov. 11.....	To cash, vouchers from Dr. Gibbons.....	15 00	Sept. 13.....	By cash, H. Gibbons, Jr.....	6 90
1878.			Sept. 13.....	By cash, W. A. Grover	2 25
March 12.....	To cash, State Medical Society.....	250 00	Nov. 10.....	By cash, A. L. Bancroft.....	20 00
April 1.....	To cash, applicants	29 25	1878.		
			March 12.....	By cash, Haight & Taylor	90 00
			March 12.....	By cash, P. H. Espina.....	15 00
			March 12.....	By cash, J. F. Montgomery.....	10 00
			April 12.....	By cash, H. P. Babcock.....	8 00
			April 10.....	By cash, Jas. Simpson.....	25 00
			April 10.....	By cash, H. S. Orme.....	55 00
			April 10.....	By cash, C. M. Bates.....	20 00
			April 10.....	By cash, seals	75
			April 10.....	By cash, rollers for certificates.....	25
			April 10.....	By cash, expressage	2 15
			April 10.....	By cash, postage stamps.....	25
			April 10.....	By cash, H. Gibbons, Jr., salary.....	100 00
		$347 67			$378 55
				To balance due Treasurer, April 15, 1878 ..	$30 88

Respectfully submitted.

C. M. BATES, M. D., Treasurer.

CONSTITUTION AND BY-LAWS OF THE SOCIETY.

ARTICLE I.

TITLE OF THE SOCIETY.

SECTION 1. This institution shall be styled "THE MEDICAL SOCIETY OF THE STATE OF CALIFORNIA."

ARTICLE II.

MEMBERS.

SECTION 1. The members of this Society shall consist of delegates from permanently organized local medical societies, ordinary and honorary members, who shall collectively represent and have cognizance of the common interests of the medical profession in the State of California.

SEC. 2. Each delegate from a local society shall hold his appointment for one year, and until another is appointed to succeed him, and shall participate in all the business and affairs of the Society on paying the usual dues of five dollars.

SEC. 3. Each local society shall have the privilege of sending to this Society one delegate for every five of its regular resident members, and one for every additional fraction of more than one-half that number of its members.

SEC. 4. Qualifications for membership shall consist of a good primary and medical education, attested by a diploma from some known medical school in good repute, and a good professional and moral standing in the community in which such candidate may reside. A license from the Board of Examiners of this Society shall also be required of every candidate.

Ordinary members—Every physician who shall properly satisfy the Board of Censors by the exhibition of his diploma that he possesses the necessary qualifications as prescribed, may become an ordinary member of this Society,

and all those who may hereafter serve in the capacity o delegates to the Society, together with such other person as may receive the appointment by unanimous vote, shal thereby become permanent members; *provided*, that n physician shall be considered eligible to membership wh may reside within any location where there is a local medi cal society, and who has failed to become a membe thereof, unless there be some special reason assigned fo his election, and no voucher or vouchers of any member o members shall be taken as satisfying evidence of any appli cant's qualification for membership.

SEC. 5. Honorary members shall consist of such distin guished *savants* and others as may be deemed worthy o the compliment. They shall receive their appointment b a vote of the Society, and upon a motion of some membe present.

SEC. 6. Each individual, prior to taking his seat as member of the Society, must sign the Constitution, inscrib ing his name and address in full, specifying in what capacit he attends, and if a delegate, the local society which h represents. Every member shall be entitled to the diploma of the Society, to which shall be attached the seal* of th Society, and the signature of the President and Permanen Secretary.

SEC. 7. The seal of this Society shall always be kept b the Permanent Secretary.

ARTICLE III.

OFFICERS.

SECTION 1. The officers of the Society shall be Presi dent, four Vice Presidents, one Permanent and two Assist

* The seal that has been adopted shows enough of the beautiful design o the seal of the State to declare the common origin of the Medical Society an of the State of California, while the cock that was wont to be sacrificed t Esculapius representing "vigilance," is crowing out 1870, the year of reorgan ization; and the serpent, emblematic of "sagacity and long life," lies entwine around the doctor's staff at his feet. Thus Vigilance and Sagacity typify th qualities a physician should possess under the direction of Minerva.

ant Secretaries, a Treasurer, and a Board of Censors of five members. These officers shall be nominated by a committee of one member from each county represented, on the morning of the second day of the meeting, and be elected by ballot, except Permanent Secretary. Each officer shall hold his appointment for one year, and until another is elected to succeed him.

SEC. 2. The President shall preside at the meeting, preserve order, give a casting vote in case of a tie, and perform all other duties that custom and parliamentary usage may require. He shall organize and open the meeting next succeeding his election, by an address on some subject connected with medicine, or with the interests of the Society. He may also fill by appointment all vacancies that may occur from death or other causes.

SEC. 3. The Vice Presidents, when called upon, shall assist the President in the performance of his duties, and during his absence, or at the request of the President, one of them shall officiate in his place.

SEC. 4. The Permanent Secretary shall reside in Sacramento, and shall authenticate the proceedings; give due notice of time of next meeting; shall serve as a member of Committee on Publication; shall preserve the archives and unpublished transactions of the Society; shall hold correspondence with other permanently organized societies, both domestic and foreign, and see that all the published transactions are promptly distributed to the members entitled to receive them. This officer shall not be subject to annual election, and shall not be removed except for cause shown.

SEC. 5. The Assistant Secretaries shall record the minutes, notify members of committees of their appointment, and of the duties assigned them; and, in the absence of the Permanent Secretary, one of them shall perform his duties.

SEC. 6. The Treasurer shall have immediate charge and management of the funds as a property of the Society, and hold them subject to the disposal of the Society. At each annual meeting he shall present a report, setting forth the

amount of moneys received, as well as the amount disbursed, and for what purpose.

SEC. 7. The Board of Censors shall examine the credentials of all candidates for admission to the Society, and if such credentials are found to conform with the requirements, as enacted in Article II, of this Constitution, the Board of Censors shall recommend said applicants to the Society as suitable candidates for election.

ARTICLE IV.

MEETINGS.

SECTION 1. The regular meetings of the Society shall be held annually, and commence on the third Wednesday of April.

ARTICLE V.

STANDING COMMITTEES.

SECTION 1. The following Standing Committees, each composed of five members, of whom the first named is Chairman, shall be nominated at every annual meeting by the President elect, for the purpose of preparing and arranging business for each ensuing year, and for carrying into effect the orders of the Society not otherwise assigned, namely:

On Practical Medicine and Medical Literature.

On Surgery.

On Obstetrics.

On Medical Topography, Meteorology, Endemics, and Epidemics.

On Indigenous Botany and the Domestic Adulteration of Drugs.

On Public Hygiene and State Medicine.

On Histology and Microscopy.

On Mental Diseases and Medical Jurisprudence.

On Medical Education.

On Publication.
Of Arrangements.
On Prize Essays.

SEC. 2. The Committee on Practical Medicine and Medical Literature shall prepare an annual report on the more important improvements effected in this State in the management of individual diseases; the improvements and discoveries which may have been made in Anatomy, Physiology, General Pathology, Therapeutics, and Medical Jurisprudence.

SEC. 3. The Committee on Surgery shall prepare an annual report on all the important improvements in the management of surgical diseases effected in the State during the year, and as far as can be ascertained, the number of capital operations performed, with their results.

SEC. 4. The Committee on Obstetrics shall prepare an annual report on the important improvements in the obstetrical art, and in the management of the diseases peculiar to women and children, effected in the State during the year, together with such remarks touching these subjects as they may think proper.

SEC. 5. The Committee on Medical Topography, Meteorology, Endemics, and Epidemics, shall prepare an annual report on the peculiarity of the soil and climate of the different sections of the State, with the diseases to which they are subject; also the endemics and epidemics which have prevailed throughout the State during the year.

SEC. 6. The Committee on Indigenous Botany and the Domestic Adulteration of Drugs shall prepare an annual report on the indigenous medical botany of the State of California, paying particular attention to such plants as are found to possess valuable medicinal qualities, and are not accurately described in standard works, and the localities where they are found. Also, to report on the quality of drugs brought to our market, with the view to correct the evils arising from the extensive introduction and sale of spurious and sophisticated articles.

SEC. 7. The Committee on Public Hygiene and State Medicine shall prepare an annual report on all subjects germane to this important branch of medical science.

SEC. 8. The Committee on Histology and Microscopy shall report and demonstrate such valuable facts and discoveries, annually, bearing directly or indirectly on medicine and surgery, as they may think proper.

SEC. 9. Committee on Mental Diseases and Medical Jurisprudence. This committee shall report on all psychological questions, and on such matters appertaining to medical jurisprudence as in their judgment may be deemed advisable.

SEC. 10. The Committee on Medical Education shall prepare annual reports on the general condition of medical education in the State of California, as compared with the state of medical education in other States of the Union, noticing the several medical institutions of the State, their course of instruction, the practical requirements for graduating, the modes of examination for conferring degrees, and the reputed number of pupils and graduates at each during the year; together with such other matters as they may deem worthy of consideration in reference to medical education, and the reputable standing of the profession.

SEC. 11. The Committee on Publication—of which the Permanent Secretary must constitute a part—shall have charge of preparing for the press, and of publishing and distributing, such of the proceedings, transactions, and memoirs of the Society, as may be deemed worthy to be published.

SEC. 12. The Committee of Arrangements shall be composed of members residing in the place at which the Society is to hold its annual meeting, and shall be required to provide suitable accommodations for the meeting, to report on the credentials for membership, and to receive and announce all voluntary communications made to the Society.

SEC. 13. In order to afford the Committee on Medical Topography, Meteorology, Endemics and Epidemics, and on Indigenous Botany and the Domestic Adulteration of

Drugs, material for their several annual reports, it shall be the duty of the several auxiliary societies in the State to transmit to the Chairman of these respective committees, on or before the first day of March of each year, a special report embracing such information touching their particular localities as may enable said committees to make full reports on all the subjects committed to them.

SEC. 14. The Standing Committees shall constitute sections, after the manner of the American Medical Association, to whom all papers shall be referred upon the first day of the session, and who shall report to the Society those papers that seem of sufficient interest for reference to the Committee on Publication; also those that seem of sufficient importance to be read before the Society, by title, abstract, or *in extenso*, upon the second day of the meeting.

ARTICLE VI.

VOLUNTARY CONTRIBUTIONS.

SECTION 1. After the reading and discussion of the annual reports, or at any other period during the meeting of the Society, by the vote of two-thirds of the members present, it shall be the privilege of any member to present to the consideration of the Society, either orally or in writing, communications on medical subjects, reports of interesting cases, or such other matters as may be deemed of interest to the profession, which communications may on motion be referred to the Committee on Publication, and if deemed by them worthy of preservation, shall appear among the proceedings.

ARTICLE VII.

FUNDS AND APPROPRIATIONS.

SECTION 1. The funds of this Society shall be raised by individual voluntary contributions, by the sale of its

publications, and by an annual tax of five dollars on each member of the Society, on the payment of which he shall be entitled to a copy of all the publications for the year.

SEC. 2. The funds thus raised may be appropriated for defraying the expenses of the annual meetings; for publishing the proceedings, memoirs, and transactions of the Society; for enabling the Standing Committees to fulfill their respective duties, conduct their correspondence, and procure the material for the completion of their stated annual reports; for the encouragement of scientific investigations by prizes and awards of merit, and for such other purposes as the Society may from time to time direct.

SEC. 3. Any member who shall fail to pay his annual dues for two successive years, unless absent from the State, or for other reasonable causes, shall be dropped from the roll of members, after having been notified by the Permanent Secretary of the forfeiture of such membership; and no member so dropped shall be reinstated in his membership until he shall have paid all arrears due by him.

ARTICLE VIII.

DELEGATES TO THE NATIONAL MEDICAL ASSOCIATION.

SECTION 1. The Society shall annually appoint, to represent it in the American Medical Association, one delegate for every ten members, and one for every additional fraction of more than one-half this number, whose certificates of appointment shall be signed and duly authenticated by the President and Secretary.

ARTICLE IX.

CODE OF ETHICS.

SECTION 1. The Code of Medical Ethics recommended by the National Medical Association, held in Philadelphia in May, 1847, having been approved and adopted by this Society, shall have the full force and effect of any Article of this Constitution.

ARTICLE X.

DISCIPLINE OF MEMBERS.

SECTION 1. Any violation of the provisions of the Constitution or of the Code of Ethics adopted by this Society, shall be referred to the Board of Censors for adjudication, from whose decision an appeal may be taken to the Society. Such violation being reported by the Board of Censors to the Society, and established to the satisfaction of a majority of the members, the individual or individuals thus offending shall be excommunicated, and deprived of all the privileges of membership.

SEC. 2. The Society shall have jurisdiction in all cases of appeals taken from auxiliary societies, in which event their decision shall be final.

ARTICLE XI.

AMENDMENTS AND ALTERATIONS.

SECTION 1. No amendment or alteration shall be made in any of the Articles of this Constitution, except at the annual meeting next subsequent to that at which such alteration or amendment may have been proposed, and then only by the concurrence of two-thirds of the members in attendance.

ORDER OF BUSINESS.

The following order of business is presented as a by-law of the Society, which shall at all times be subject to a vote of a majority of all the members in attendance, and, except temporarily suspended, shall be as follows:

I. Organization of meeting.
II. Report of the Committee of Arrangements on the credentials of members after the latter have registered their names and addresses, etc.

III. The calling of the roll.

IV. The reception of members not present at the opening of the meeting, and the reading of notes from absentees.

V. Reception of members by invitation.

VI. The reading and consideration of the stated annual reports from the Standing Committees.

VII. Reading and discussion of voluntary contributions.

VIII. The election of officers and place of annual meeting, and appointments by the President elect to fill the Standing Committees.

IX. Resolutions introducing new business, and instructions to the Standing Committees.

X. Unfinished and miscellaneous business.

XI. Reading of the minutes of the session about to conclude.

XII. Adjournment.

AMENDMENTS TO CONSTITUTION.

ARTICLE II, SECTION 4. Provided, that no physician be elected a member of this society from a county having a local society, unless he be a member of the same, or unless there be some special reason for his election.—[1872, Oct. 10th.]

ARTICLE IV, SECTION 1. Amended by striking out in the second line the words "second Wednesday in October," and inserting "second Wednesday in April," as the time for holding the annual meeting of the society.

ARTICLE III, SECTION 4. Making it obligatory upon the Permanent Secretary to reside in Sacramento, striking out that clause requiring the meetings of the society to be held in Sacramento, leaving the choice of such place with each session of the association.—[1873, April 10th.]

ARTICLE IV, SECTION 1. Changing the time of meeting to the third Wednesday in April.—[1873, April 10th.]

ARTICLE VII, SECTION 3. Any member who shall fail to pay his annual dues for two consecutive years, unless absent from the State, or for other reasonable causes, shall be dropped from the roll of members, after having been notified by the Permanent Secretary of the forfeiture of his membership; and no member so dropped shall be reinstated in his membership until he shall have paid all arrears due by him.—[1874, April 21st.]

ARTICLE V, SECTION 14. That the Standing Committees shall constitute sections, after the manner of the American Medical Association, to whom all papers shall be referred upon the first day of the session, and who shall report to the society those papers that seem of sufficient interest for

reference to the Committee on Publication; also those that seem of sufficient importance to be read before the society, by title, abstract, or in extenso, upon the second day of meeting.—[1874, April 21.]

ARTICLE II, SECTION 4. After the word "Censors," add "by the exhibition of his diploma;" and after the word "election," add, "and no voucher or vouchers of any member or members shall be taken as satisfactory evidence of any applicant's qualification for membership."—[1875, April 19th.]

ARTICLE II, SECTION 4. "Shall be entitled to permanent membership," to read, "shall thereby become permanent members."—[1875, April 19th]

ARTICLE III, SECTION 1. After the word "ballot," add "except Permanent Secretary."—[1877, April 18th.]

ARTICLE III, SECTION 4. After "them," add, "this officer shall not be subject to annual election, and shall not be removed except for cause shown."—[1877, April 18th.]

ARTICLE II, SECTION 6. After the word "the" be added "signature of the President and Permanent Secretary."—[1878, April 18th.]

ARTICLE II, SECTION 4. A license from the Board of Examiners of this society shall also be required of every candidate.—[1878, April 18th.]

RESOLUTIONS RELATING TO THE GOVERNMENT OF THE SOCIETY.

Resolved, That a committee of three be appointed by the Chair, to secure the passage of an amendment to the laws organizing the State Board of Health, to enforce the registration of deaths, births, etc., to enable the Board of Health to secure more complete statistics in relation thereto.—[1870, Oct. 20th.]

Resolved, That a committee be appointed by the Chair, to present to this society, at its next meeting, any amendment which may be advisable, in their judgment, to the present law regulating the registration of births and deaths.—[1870, Oct. 20th.]

Resolved, That the fact of a doctor of medicine being engaged in the manufacture and sale of any secret or patent medicine, or in any way promoting the use of them, shall render him ineligible as a member of this society.—[1871, Oct. 12th.]

Resolved, As a sense of this society, that the subject of medical ethics should receive a larger share of attention in medical universities and colleges of the country, to the end that the true principles inculcated therein may be more thoroughly impressed upon the minds of the students, and, in consequence, more faithfully and scrupulously observed by them in their subsequent professional career.—[1871, Oct. 12th.]

Resolved, That the Board of Censors shall recommend no candidate for membership until he shall have presented his diploma or other evidence of being a graduate of a recognized school, and of good standing; and that no voucher

of a single member shall be considered sufficient evidence of his qualifications.—[1871, Oct. 12th.]

The Secretary was instructed to notify the committees of their appointment as soon as made by the President; also, that the Chairman of each committee be requested to notify each member of said committee of his appointment.—[1872, Oct. 10th.]

Resolved, That the Committee on Revision of the Constitution and By-Laws be instructed to introduce into the code a law requiring the reading of the minutes of each session at the conclusion of the same.—[1873, Oct. 10th.]

Resolved, That a Permanent Secretary be elected for the society, who shall be paid for his services, and that an additional Assistant Secretary shall be appointed each year by the President at the place of the future meeting. The salary of the Permanent Secretary to be fixed by the vote of the society.—[1873, Oct. 10th.]

Resolved, That the Permanent Secretary be allowed a salary of one hundred dollars.—[1874, April 10th.]

Resolved, That the Chairman of the various Standing Committees hereafter present a synopsis of their several reports; the reading of which will be considered as fulfilling the provisions of the Constitution.—[1874, April 10th.]

Resolved, That the Publishing Committee be instructed to make out an alphabetical list of the members, together with their places of residence, for the society, and have the same published in the next volume of transactions.—[1874, April 10th.]

Resolved, That the President and Secretary be authorized to issue credentials to any member of this society who desires to attend the meeting of the American Medical Association as a delegate.—[1874, April 10th.]

Resolved, That the Secretary be authorized to issue credentials to any member of the society desirous of visiting any foreign medical association.—[1874, April 10th.]

Resolved, That this society recognizes the diplomas of the Toland College, and places its graduates who are now members of this society, or who may hereafter apply for membership, on the same footing as the graduates of other regular schools.—[1875, April 21st.]

Resolved, That the original founders of the society are permanent members and liable to yearly dues, and that all members once admitted are liable to yearly dues, whether simply as a delegate or otherwise.—[1875, April 21st.]

Resolved, That a committee of five members be appointed for the purpose of promoting the organization of county or district societies.—[1875, April 21st.]

Resolved, That the San Francisco Medical Benevolent Society be, and the same is hereby recognized as a local medical society within the meaning of the Constitution of the State Medical Society, which requires its members to belong to a local medical society, when there is one where they reside.—[1875, April 19th.]

On motion it was ordered that the actual expenses incurred by the Board of Examiners be paid by the Treasurer of the society.—[1875, April 19th.]

Resolved, That this society indorse the views of the President as to the importance of the creation of local Boards of Health in every incorporated city and town in the State; and recommend the invocation of legislative aid in the promotion of so desirable an object.—[1877, April 18th.]

Resolved, That the practice of making annual contracts with individuals or societies for medical attendance is not only derogatory to the dignity of the profession, but is an actual violation of the code of medical ethics adopted by the American Medical Association, as well as the code adopted by this society.—[1877, April 18th.]

Resolved further, That the name of any member of this association who shall hereafter make or renew a contract

for annual medical attendance upon individuals or societies shall be stricken from the roll of the same.—[1877, April 18th.]

It was ordered that the actual expenses incurred by the Board of Examiners of this society be paid by the Treasurer of the society; who shall also pay such expenses of litigation as may be deemed necessary and expedient in order to carry out the objects of the law under which they were elected.—[1877, April 18th.]

Resolved, That the Publication Committee be requested to insert in the proceedings, in a collective form, all the changes in the Constitution, and the resolutions relating to the government of the society, which have been adopted from time to time.—[1878, April 17th.]

Resolved, That the several local medical societies and Boards of Health throughout the State be requested to urge their respective city, county, and town authorities to establish ordinances or laws requiring all practitioners of medicine within the limits of their respective jurisdictions to report in writing to their respective Boards of Health, all cases of the more dangerous epidemic diseases coming under their professional observation.—[1878, April 17th.]

Resolved, That the Secretary of the Board of Examiners be instructed to communicate with the local medical societies, and urge that they prosecute violations of the medical law, and that they report progress from time to time to the Board of Examiners.—[1878, April 17th.]

Resolved, That this society appeal to all ministers of the gospel throughout the State, and urge them to use their influence in all proper and available ways to discourage the inhuman, degrading, and extensively prevailing practice of feticide.—[1878, April 17th.]

STANDING COMMITTEES
OF THE STATE MEDICAL SOCIETY FOR 1878–79.

ON PRACTICAL MEDICINE—H. Gibbons, Sr., San Francisco; G. W. Davis, Chico; W. S. Thorne, San Jose; W. A. Russell, Visalia; Henry Worthington, Los Angeles.

ON SURGERY—E. H. Woolsey, Oakland; A. B. Nixon, Sacramento; E. B. Robertson, San Andreas; E. L. Parrimore, Woodland; E. J. Pelham, San Quentin.

ON OBSTETRICS—F. W. Todd, Stockton; B. D. Dean, San Francisco; B. F. Hardy, San Francisco; T. A. Snider, Sacramento; C. Cushing, Oakland.

ON HISTOLOGY AND MICROSCOPY—J. H. Wythe, Oakland; H. D. Robertson, Santa Clara; L. R. Webster, Grass Valley; P. B. McD. Miller, Oroville; J. M. Willey, San Francisco.

ON PUBLIC HYGIENE AND STATE MEDICINE—F. W. Hatch, Sr., Sacramento; J. L. Meares, San Francisco; A. B. Mehring, Visalia; O. Harvey, Galt; M. M. Chipman, Santa Clara.

ON MEDICAL TOPOGRAPHY, ENDEMICS, ETC.—H. Neal, Hollister; H. J. Crumpton, Lakeport; J. T. Wells, Bakersfield; W. A. Washington, Merced; C. M. Fenn, San Diego.

ON INDIGENOUS BOTANY—W. P. Gibbons, Alameda; A. S. Dubois, San Leandro; M. Pietrzycki, Rio Vista; N. Williams, Richland; A. Fine, Watsonville.

ON MENTAL DISEASES—A. B. Stout, San Francisco; E. T. Wilkins, Napa; G. J. Van Vlack, San Francisco; A. H. Agard, Oakland; I. S. Titus, San Francisco.

ON MEDICAL EDUCATION—C. N. Ellinwood, San Francisco; J. T. Crook, San Francisco; S. Holmes, Santa Cruz; W. T. Bell, Winters; A. H. Cochrane, San Jose.

ON PRIZE ESSAYS—H. H. Toland, San Francisco; B. Cory, San Jose; G. H. Powers, San Francisco; W. C. Jones, Grass Valley; S. J. S. Rogers, Marysville.

ON ARRANGEMENTS—R. B. Cole, San Francisco; James Simpson, San Francisco; J. L. Meares, San Francisco; A. M. Wilder, San Francisco; W. T. Wythe, Jr., San Francisco.

ON PUBLICATION—G. G. Tyrrell, Sacramento; F. W. Hatch, Sacramento; T. A. Snider, Sacramento; W. R. Cluness, Sacramento; H. W. Nelson, Sacramento.

SPECIAL COMMITTEES.

ON GYNÆCOLOGY—John Scott, San Francisco; M. S. McMahon, San Jose; Asa Clark, Stockton; W. R. Cluness, Sacramento; C. B. Bates, Santa Barbara.

ON OPHTHALMOLOGY—A. Barker, San Francisco; A. P. Whittell, Sacramento; A. M. Wilder, San Francisco; N. J. Martinache, San Francisco; J. S. Adams, Oakland.

ON DISEASES OF WOMEN AND CHILDREN—L. E. Wanzer, San Francisco; E. A. V. Brownell, Los Angeles; C. Blake Brown, San Francisco; C. A. Buckel, San Francisco; E. Grisselle, San Francisco.

ON NECROLOGY—H. A. DuBois, San Rafael; George Hewston, San Francisco; H. N. Rucker, Merced; M. W. Fish, Oakland; A. Jump, Downieville.

CATALOGUE OF OFFICERS AND MEMBERS

OF

THE MEDICAL SOCIETY OF THE STATE OF CALIFORNIA.

PRESIDENTS AND VICE PRESIDENTS OF THE STATE MEDICAL SOCIETY.

1856.

SACRAMENTO.

President,

B. F. Keene.....El Dorado.

Vice Presidents,

E. S. Cooper .....San Francisco.
S. Langdon..... .....San Joaquin.
D. W. C. Rice.....Yuba.
R. K. Reid.....San Joaquin.
F. W. Hatch.....Sacramento.

1857.

SACRAMENTO.

President,

H. Gibbons.....San Francisco.

Vice Presidents,

R. H. McDaniels.....Yuba.
O. Harvey .....El Dorado.
A. J. Spencer.....Santa Clara.
R. B. Ellis.....Sacramento.
A. B. Stout..... .....San Francisco.

1858.

SAN FRANCISCO.

President,

A. B. Stout.....San Francisco.

Vice Presidents,

J. P. Whitney.....San Francisco.
C. N. Ege.....Yuba.
A. J. Spencer.....San Jose.
I. E. Oatman .....Sacramento.
J. Morrison.....San Francisco.

1859.

SACRAMENTO.

President,

R. B. Ellis.....San Francisco.

Vice Presidents,

J. F. McLane.....Yuba.
H. W. Harkness.....Sacramento.
O. Harvey.....El Dorado.
W. G. Deal.....Alameda.
J. F. Montgomery.....Sacramento.

1860.

President,

Isaac Rowell.....San Francisco.

Vice Presidents,

Isaac S. Titus.....El Dorado.
C. A. Kirkpatrick.....Solano.
R. B. Cole.....San Francisco.
Ira E. Oatman.....Sacramento.

Corresponding Secretary,

*E. S. Cooper.....San Francisco.

* Dr. Cooper was also elected one of the Vice Presidents, but declined—preferring the position of Corresponding Secretary.

Recording Secretaries,

G. Taylor.....Sacramento.
G. L. Simmons.....Sacramento.

Treasurer,

H. W. Harkness.....Sacramento.

1861.

President,

Samuel F. Hamm.....El Dorado.

Vice Presidents,

B. H. Pierson.....Sacramento.
G. L. Simmons.....Sacramento.
C. A. Kirkpatrick.....Solano.
B. A. Sheldon .....San Francisco.
J. G. Tucker.....San Francisco.

Corresponding Secretary,

E. S. Cooper .....San Francisco.

Recording Secretaries,

G. Taylor.....Sacramento.
Isaac S. Titus.....El Dorado.

Treasurer,

H. W. Harkness.....Sacramento.

1870.

SAN FRANCISCO.

[Reorganization of State Medical Society.]

President,

T. M. Logan.....Sacramento.

Vice Presidents,

S. R. Harris.....San Francisco.
T. H. Pinkerton.....Alameda.
J. L. Ord.....Santa Barbara.
G. A. Shurtleff.....San Joaquin.
D. B. Hoffman .....San Diego.

1871.

SACRAMENTO.

President,

H. Gibbons, Sr.....San Francisco.

Vice Presidents,

G. A. Shurtleff.....San Joaquin.
F. W. Hatch.....Sacramento.
F. W. Todd.....San Joaquin.
J. F. Montgomery.....Sacramento.

1872.

OAKLAND.

President,

G. A. Shurtleff.....San Joaquin.

Vice Presidents,

T. H. Pinkerton.....Alameda.
J. J. Franklin.....Sonora.
W. F. Cheney.....Butte.
W. F. Hays.....San Luis Obispo.

1873.

SACRAMENTO.

President,

T. H. Pinkerton.....Alameda.

Vice Presidents,

J. M. Brown.....Solano.
C. A. Kirkpatrick.....San Mateo.
F. W. Hatch.....Sacramento.
H. M. Briggs.....Santa Barbara.

Permanent Secretary,

G. G. Tyrrell.....Sacramento.

1874-5.

SAN FRANCISCO.

President,

J. M. Brown, U. S. N .....Solano.

Vice Presidents,

A. B. Nixon.....Sacramento.
W. F. Cheney.....Butte.
Martin Baker.....Tulare.
R. K. Reid.....San Joaquin.

Permanent Secretary,

G. G. Tyrrell.....Sacramento.

1875-6.

SAN FRANCISCO.

President,

A. B. Nixon.....Sacramento.

Vice Presidents,

W. F. Cheney.....Butte.
H. H. Toland.....San Francisco.
W. R. Cluness.....Sacramento.
H. S. Orme.....Los Angeles.

Permanent Secretary,

G. G. Tyrrell.....Sacramento.

1876-7.

SAN FRANCISCO.

President,

Wm. Fitch Cheney .....Chico.

Vice Presidents,

B. D. Dean.....San Francisco.
N. S. Hamlin.....Yuba City.
M. B. Pond.....Napa.
F. W. Todd.....Stockton.

Permanent Secretary,

G. G. Tyrrell.....Sacramento.

1877-8.

SAN JOSE.

President,

Washington Ayer.....San Francisco.

Vice Presidents,

L. C. Lane.....San Francisco.
A. W. Saxe.....Santa Clara.
J. M. Briceland.....Shasta.
Thomas Ross.....Woodland.

Permanent Secretary,

G. G. Tyrrell.....Sacramento.

1878-9.

SAN FRANCISCO.

President,

H. S. Orme.....Los Angeles.

Vice Presidents,

A. W. Saxe.....Santa Clara.
J. M. Briceland.....Shasta.
James Simpson.....San Francisco.
G. L. Simmons.....Sacramento.

Permanent Secretary,

G. G. Tyrrell.....Sacramento.

Assistant Secretaries,

F. W. Hatch, Jr.....Sacramento.
Thomas Ross.....Woodland.

Treasurer,

I. E. Oatman.....Sacramento.

Board of Censors,

H. Gibbons, Sr.....San Francisco.
Q. C. Smith.....Cloverdale.
B. D. Dean.....San Francisco.
R. A. McLean.....San Francisco.
W. A. Grover.....San Francisco.
C. A. Kirkpatrick.....Redwood City.

State Board of Examiners,

R. Beverly Cole.....San Francisco.
H. Gibbons, Jr.....San Francisco.
C. M. Bates.....San Francisco.
H. P. Babcock.....Oakland.
J. B. Cox.....San Jose.
Luke Robinson.....Colusa.
J. F. Montgomery.....Sacramento.

Alternates,

G. A. Shurtleff.....Stockton.
G. W. Davis.....Chico.
S. Holmes.....Santa Cruz.

ORDINARY MEMBERS.

[Those who have an obelisk (†) prefixed to their names are dead.]

Adams, J. S.....Oakland.
Agard, A. H.....Oakland.
Aiken, G. H.....San Francisco.
Allen, C. H.....Centreville.
Andrei, A.....San Francisco.
Anthony, A. G.....Oakland.
Auerbach, J. J.....San Francisco.
Ayer, W.....San Francisco.
Babcock, H. P.....Oakland.
Bak, H.....San Francisco.
Baker, Martin.....Visalia.
Baldwin, H. S.....San Francisco.
Baldwin, W. H.....Sacramento.
Bamford, William.....East Oakland.
Barber, E. T.....Oakland.
Bard, C. L.....S. Buenaventura.
Barkan, A.....San Francisco.
Bates, C. B.....Santa Barbara.
Bates, C. M.....San Francisco.
Becker, A. R.....San Francisco.
Belinge, F. A. A.....San Francisco.
Bell, W. T.....Winters.
Belton, W. H.....Colusa.
Biggs, F. B.....San Francisco.
Blake, E. C.....San Francisco.
Bradbury, W. T.....San Francisco.
Briceland, J. M.....Shasta.
Briggs, H. H.....Sacramento.
Brigham, C. B.....San Francisco.
Brinkerhoff, S. B.....Santa Barbara.

Brown, S. E. ..... San Jose.
Brown, C. Blake ..... San Francisco.
Brown, J. M., U. S. N ..... Mare Island.
†Brown, James A ..... Sutter Creek.
Brownell, E. A. V ..... Los Angeles.
Bruner, W. H ..... San Francisco.
Buckel, C. Annette ..... Oakland.
Bucknall, G. J ..... San Francisco.
Bucknell, M. E ..... San Francisco.
Burdick, J. L ..... Oakland.
Burgess, O. O ..... San Francisco.
Caldwell, A. B ..... Marysville.
†Caldwell, A. B ..... Santa Clara.
Caldwell, Robert ..... San Jose.
Callandreau, J ..... San Francisco.
†Campbell, S. D ..... Suisun.
Carothers, J. H ..... Martinez.
Carr, E. S ..... Oakland.
†Chamberlin, P ..... San Francisco.
†Chase, George C ..... Downieville.
Cheney, William Fitch ..... Chico.
Chesley, C. P ..... San Francisco.
Chipman, M. M ..... San Jose.
Chismore, George ..... San Francisco.
Christie, J. B ..... Petaluma.
Clark, Asa ..... Stockton.
Clark, J. H ..... Leesville.
Clark, B. F ..... Chico.
Cluness, W. R ..... Sacramento.
Cochrane, A. H ..... San Jose.
Cole, R. Beverly ..... San Francisco.
Coleman, C. S ..... San Leandro.
Colman, F. W ..... Napa.
Cory, Benjamin ..... San Jose.
Cox, J. B ..... San Jose.
Crane, J. H ..... Petaluma.
Crook, John T ..... San Francisco.
Crumpton, H. J ..... Lakeport.

Curless, Wm.....Truckee.
†Curtis, E. M.....Sacramento.
Cushing, Clinton.....Oakland.
Davis, G. W.....Chico.
Dawson, J. A.....Chico.
Dean, Benjamin D.....San Francisco.
Delmont, F.....Ventura.
Dennis, S. W.....San Francisco.
Deuel, S. A.....Sacramento.
Dozier, Franklin L.....Napa.
Dubois, A. S.....San Leandro.
DuBois, H. A.....San Rafael.
Durant, F. C.....Folsom.
Dutton, G. W.....Tomales.
Ellinwood, C. N.....San Francisco.
Evans, George H.....Dixon.
Farley, C. K.....Gilroy.
Farrar, M. E.....Yagersville.
Fenn, C. M.....San Diego.
Ferrer, H.....San Francisco.
Fine, A.....Watsonville.
Fish, M. W.....Oakland.
Fisher, Charles.....Sacramento.
Fiske, Henry M.....San Francisco.
Flint, Joseph.....Tehama.
Follingsbee, E. A.....San Francisco.
Foote, Erastus N.....Lockford.
Foulkes, J. F.....Oakland.
†Franklin, J. J.....Sonora.
Freeman, G. M.....Visalia.
Gardner, Mathew.....Davisville.
Gates, H. S.....San Francisco.
Gibbons, Henry.....San Francisco.
Gibbons, Henry, Jr.....San Francisco.
Gibbons, William P.....Alameda.
Goodspeed, J. R.....San Mateo.
Gordon, E. A.....Dixon.
Gordon, J. B.....Santa Rosa.

Grannis, M. M.....Visalia.
Green, T.....San Francisco.
Grisselle, Eliza.....San Francisco.
Grover, W. A.....San Francisco.
Hamlin, N. S.....Yuba City.
Hanson, Thomas C.....Winnemucca.
Hardy, B. F.....San Francisco.
Harris, E. B.....Virginia City.
Harrington, C. C.....Marysville.
Harvey, O.....Galt.
†Harville, J. W.....San Francisco.
Hatch, F. W.....Sacramento.
Hatch, F. W., Jr.....Sacramento.
Hays, W. W.....San Luis Obispo.
Herz, C.....San Francisco.
Hewston, George.....San Francisco.
Hodgdon, W. H. A.....San Francisco.
Holmes, Stillman.....Santa Cruz.
Howe, A. J.....Los Angeles.
Hudson, A. S.....Stockton.
Hunt, R.....Nevada City.
Jackson, G. H.....Woodland.
Jackson, J. S.....Modesta.
Jenkins, T. J.....San Jose.
Jones, William C.....Grass Valley.
Jump, Alemby.....Downieville.
Keane, G. B.....San Francisco.
Kelly, Thomas.....Santa Clara.
Kenyon, C. G.....San Francisco.
Kesseler, A.....Volcano.
Kier, H. M.....Knight's Land'g.
Kirkpatrick, C. A.....Redwood City.
Lampson, R. M.....Chinese Camp.
Lane, L. C.....San Francisco.
Langdon, S.....Stockton.
†Lasvignes, L.....Forest City.
†Logan, Thomas M.....Sacramento.
Lovelace, L. M.....Le Moore.

Lusson, P. M .....San Jose.
Mackintosh, Robert .....San Francisco.
Markell, R. S.....Cacheville.
Martinache, N. J .....San Francisco.
Martineaut, E. D.....San Francisco.
McLean, R. A.....San Francisco.
McMahan, M. S.....San Jose.
McMahan, Jno. B.....San Jose.
McNutt, W. F.....San Francisco.
Mead, E. S.....San Jose.
Meares, J. L .....San Francisco.
Mehring, A. B .....Visalia.
Miller, P. B. McD.....Oroville.
†Millington, John.....San Francisco.
Montgomery, J. F.....Sacramento.
†Morse, John F.....San Francisco.
Murphy, James.....San Francisco.
Murphy, R. W .....San Francisco.
Mussey, J. M.....La Porte.
Neal, H.....Hollister.
Nelson, H. W.....Sacramento.
Newmark, V.....Benicia.
Nichell, C. F. A.....Napa.
Nichols, H. L.....San Francisco.
Nixon, A. B.....Sacramento.
Oatman, Ira E.....Sacramento.
O'Neil, A. A.....San Francisco.
Orme, H. S.....Los Angeles.
Pardee, E. H.....Oakland.
Parkinson, M. C.....Antioch.
Parramore, E. L.....Woodland.
Paugh, W. J.....San Francisco.
Pawlicki, L.....San Francisco.
Payne, F. H.....Berkeley.
Pelham, E. J.....Alamedentin.
Pietrzycki, M.....Vista.
Pike, H. G.....Sanel.
Pinkerton, T. H.....Oakland.

Plummer, R. H.....San Francisco.
Powell, D.....Marysville.
Powers, G. H.....San Francisco.
Pond, M. B.....Napa.
Pratt, A. H.....Dixon.
Regensberger, A. E.....San Francisco.
Reid, R. K.....Stockton.
Reilay, John P.....Oakland.
Robertson, E. B.....San Andreas.
Robertson, H. D.....Oakland.
Robinson, Luke.....Colusa.
Rodgers, L. O.....San Francisco.
Rogers, S. J. S.....Marysville.
Rogers, Geo. H.....San Francisco.
Ross, Thomas.....Woodland.
Rowell, Charles.....San Francisco.
Rucker, Hiram N.....Merced.
Rupe, S. H.....Healdsburg.
Russell, W. A.....Visalia.
†Sage, C. T.....San Francisco.
Saxe, A. W.....Santa Clara.
Scott, J. D.....San Jose.
Scott, John.....San Francisco.
Shafter, J. C.....Olema.
Shurtleff, Benjamin.....Napa.
Shurtleff, G. A.....Stockton.
Simmons, G. L.....Sacramento.
Simonton, W. B.....Oakland.
Simpson, James.....San Francisco.
Smith, L. E.....La Porte.
Smith, W. F.....San Francisco.
Smith, Q. C.....Cloverdale.
Snider, T. C.....Sacramento.
Spillane, Jam[illegible].....San Francisco.
Sprague, R. W.....San Francisco.
Sproule, Samuel F.....Chico.

Stivers, C. A.....San Francisco.
Stone, E. P.....Oakland.
Stout, A. B.....San Francisco.
Strong, A.....Woodland.
Sullivan, James F.....San Francisco.
Swan, Benj. R.....San Francisco.
†Thorndyke, A.....Stockton.
Thorne, W. S.....San Jose.
Tibbitts, S. M.....San Francisco.
†Tilden, T. W.....Chico.
Titus, I. S.....San Francisco.
Todd, T. M.....Auburn.
Todd, F. W.....Stockton.
Toland, H. H.....San Francisco.
Tooly, L. P.....Colusa.
Tonner, J. A.....San Francisco.
Trembly, J. B.....Oakland.
Twitchell, W. L.....San Francisco.
Tyrrell, G. G.....Sacramento.
Van Vlack, G. J.....San Francisco.
†Van Wyck, John C.....Oakland.
Wagner, John.....San Francisco.
Wanzer, L. M. F.....San Francisco.
Washington, W. A.....Merced.
Wayland, James F.....Chico.
†Wayman, W. G.....San Francisco.
Webster, L. R.....Grass Valley.
Wells, J. T.....Bakersfield.
Wells, W. H.....Dixon.
Wemple, E. L.....Antioch.
Wheeler, P.....Oakland.
White, G. A.....Sacramento.
Whittell, A. P.....Sacramento.
Wilder, A. M.....San Francisco.
Wilkins, E. T.....Napa.
Willey, John M.....San Francisco.
Williams, N.....Richland.

Woolsey, E. H.....Oakland.
Worthington, H.....Los Angeles.
Wythe, W. T.....San Francisco.
Younger, W. J.....San Francisco.

HONORARY MEMBERS.

Joseph Hyrtle.....Vienna, Austria.
Charles A. Cameron.....Dublin, Ireland.
†Professor Louis Agassiz.....Massachusetts.
S. W. Thayer.....Vermont.
J. H. Wythe.....Oakland, Cal.
John Le Conte.....Oakland, Cal.
Joseph Le Conte.....Oakland, Cal.
A. Ames.....Boston, Mass.
P. Landsdale.....United States Navy.
David Kindleberger.....United States Navy.
W. E. Taylor.....United States Navy.
S. F. Shaw.....United States Navy.
W. M. Nickerson.....United States Navy.
C. McCormick.....United States Army.
R. Murray.....United States Army.
C. C. Keeney.....United States Army.
E. Bently.....United States Army.
F. Tallon.....United States Army.

Geo. H. Powers

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M5
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C15

TRANSACTIONS

UNIV. OF MICH.
JAN 8 1908

OF THE

MEDICAL SOCIETY

OF THE

STATE OF CALIFORNIA,

DURING THE YEARS 1878 AND 1879.

SACRAMENTO:
H. S. CROCKER & CO., STATIONERS AND PRINTERS.
1879.

610.5
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TRANSACTIONS

OF THE

MEDICAL SOCIETY

OF THE

STATE OF CALIFORNIA,

DURING THE YEARS 1878 AND 1879.

SACRAMENTO:
H. S. CROCKER & CO., STATIONERS AND PRINTERS.
1879.

REPORT OF COMMITTEE ON PUBLICATION.

THE Committee on Publication have much pleasure in presenting to its members the Ninth Volume of the Transactions of the Medical Society of the State of California, believing that in the character of the papers presented and the typography of the volume, it is fully equal, if not superior, to any that has preceded it.

GERRARD G. TYRRELL, Chairman,
F. W. HATCH,
G. L. SIMMONS,
A. B. NIXON,
G. A. SHURTLEFF,
Members of Committee on Publication.

SACRAMENTO, July, 1879.

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THE NINTH ANNUAL MEETING

OF THE

MEDICAL SOCIETY

OF THE

STATE OF CALIFORNIA.

The Ninth Annual Session of the Medical Society of the State of California was convened at Covenant Hall, on Eddy street, San Francisco, at 11 A. M., April 16th, 1879, President H. S. Orme in the chair.

The following members were present when the meeting was called to order: C. P. Chesly, San Francisco; M. Gardner, Davisville; Thomas Ross, Woodland; G. G. Tyrrell, Sacramento; A. M. Wilder, San Francisco; James Simpson, San Francisco; G. A. Shurtleff, Stockton; A. B. Nixon, Sacramento; Q. C. Smith, Cloverdale; H. S. Orme, Los Angeles; J. M. Briceland, Shasta; F. W. Todd, Stockton; J. B. Trembley, Oakland; A. E. Regensberger, Washington Ayer, Benjamin R. Swan, J. L. Meares, C. M. Bates, Henry Gibbons, Sr., R. H. Plummer, Mrs. L. M. F. Wanzer, Mrs. M. E. Bucknell, W. H. Bruner, G. J. Van Vlack, A. B. Stout, Mrs. S. E. Brown, H. Gibbons, Jr., W. F. McNutt, G. M. Freeman, G. J. Bucknall, R. M. McLean, W. A. Grover, and H. S. Baldwin, San Francisco; E. S.

Carr, Sacramento; A. Barkan, San Francisco; H. J. Crumpton, Lakeport; Stillman Holmes, Santa Cruz; Clinton Cushing, Oakland; E. S. Meade, San Jose; W. L. Twitchell, Alameda; D. Walker, Nortonville; W. A. Washington, Merced; H. Neal, Hollister; W. B. Simonton, Oakland; J. T. Wells, Bakersfield; R. K. Reid, Stockton; C. A. Kirkpatrick, Redwood City; F. W. Hatch, Jr., Sacramento; S. M. Tibbitts, San Francisco; R. S. Markell, Cacheville; George H. Jackson, Woodland; Ira E. Oatman, Sacramento; M. B. Pond, Napa; G. L. Simmons, Sacramento; A. W. Saxe, Santa Clara; L. C. Lane, San Francisco; Miss E. A. Follansbee, San Francisco; W. P. Gibbons, Alameda; E. Grisselle, San Francisco; C. G. Kenyon, San Francisco.

The Society having been called to order, Dr. James Simpson, Chairman of the Committee of Arrangements, read the following address of welcome to the members and delegates:

MR. PRESIDENT, LADIES AND GENTLEMEN OF THE MEDICAL SOCIETY OF THE STATE OF CALIFORNIA: The departure for the East a few weeks ago of the gentleman selected as Chairman of the Committee of Arrangements, imposes upon me the pleasing duty of acting the part of welcome, and extending to you, one and all, a cordial and hearty greeting upon this occasion, the commencement of the Ninth Annual Meeting of the Medical Society of the State of California. The profession of this metropolis bid you welcome, and gladly embrace the opportunity of becoming more intimately acquainted with their brethren from a distance.

The Committee of Arrangements, in welcoming you to the City of San Francisco, and inviting you to convene in this new and spacious hall, feel that they are removing you from some of the old and familiar landmarks hallowed by association, and remembered by pleasing reminiscences of former conventions. They feel assured, however, that the improvement will be sufficiently obvious to cause the change to meet with your approval.

We welcome you to the full enjoyment of that freedom

here indicates, and the necessity of
l practitioners, can so well appreciate—
daily, weekly, yearly round of drud-
its accompaniment of anxiety and
from the hard and beaten track of
two at least, to enjoy the gratification
ings and comparing notes with old
rmer associations, and commenting
future prospects of our profession.
ue of our annual gatherings in cement-
wship, we shall enjoy the still greater
g to the most proficient amongst us
very or improvements their investiga-
as taught them during the past, there-
with the march of improvement, and
ne higher degrees of proficiency de-
essiveness of our science. While the
ls to carry us forward, upon this, the
our reorganization, it may not be amiss
y of our position, and the degree to
ered—that we have prospered is mani-
interest in our annual meetings, the
r membership, and the superior char-
resented. Our published volumes of
favorably with those of our sister
tes, and embody facts and observations
peculiar to our topography and climate,
ave been recorded had it not been for
Society. By the passage of the medi-
tuted not only the legal guardians of
, but to us is confided the still higher
he public from deception and fraud
quackery. We stand at the portals,
ance to all who are deemed unworthy.
earned to recognize this fact, especially
son assuming to be a regular physician,
ine without a license from this Society,
authority and in an illegal manner.

To-day, this Society is the exponent and authorized representative of its licentiates, numbering over one thousand members of the regular medical profession, and including within its ranks graduates of every medical institution in the known world.

But, ladies and gentlemen, to return to the matter more immediately in hand—the regular business of this Society. The Committee of Arrangements have issued and sent to each member of this Society a programme, composed of such material as they had received; anxious to have it reach you in advance of this meeting necessarily leaves it somewhat incomplete.

The San Francisco Medical Society, though advancing in years and growing in conservatism, is exceedingly desirous of enacting the part of host, and cordially invites you, one and all, individually and collectively, to an entertainment at the Baldwin Hotel, prepared under the supervision of a committee especially selected for their well known ability as caterers. And now, with words of warmest welcome to you all, with the sincere desire and confident expectation that the session about to commence may broaden the thoughts and brighten the perceptions of every individual present, as well as inure to the permanent benefit of the profession to which we have devoted the labor of our lives, I close.

Upon motion, the address was referred to the Committee on Publication.

The Board of Censors reported the names of the following gentlemen as eligible for membership:

NAME.	SCHOOL.	DATE.
George E. Reynolds	University of California	1877
Edwin A. Matson	University of Virginia	1871
Mary K. Curran	University of California	.....
Charles Augustus Ruggles	Vermont Medical College	1854
M. Reinhart	University of Louisville	1870
John Leffler	Medical College of Pacific	1874
Henry St. George Hopkins	University of Pennsylvania	1855
J. O. Hirschfelder	University of Leipsic	1876
David Walker	University of California	1874
Charles F. Miller	University of California	1874

eived and the applicants elected.
ed that J. H. Lewis, of the Jefferson
l not complied with the rules of the
ıd been deferred. The gentleman was
sessions of the Society.
lameda, who is not a member of the
resented to the Censors that he had
ted by said Society. The case was
neda delegation, and the gentleman
e convention.
of Osaka, Japan, was introduced by
ciety, and was invited by the Presi-
convention.
from the State Medical Society of
Dr. Lansing, was read, also a letter
nouncing the sad intelligence of Dr.
inviting the members of the conven-
ich was to take place in the afternoon.
hing, the communications were placed
tary directed to so inform the relatives
cian.
nt of the Society, then delivered the
ch, on motion, was referred to the
ation.
was read from Dr. J. H. Johnson, of
t his certificate to practice medicine
oard of Examiners, on account of the
ma mater, Keokuk College, Iowa, and
n motion, the matter was referred to
.
eting adjourned until 2 P. M.

SESSION, APRIL 16TH, 1879.

lled to order by the President, at 2

The minutes of the morning session were read and approved.

The resignation of Dr. Geo. Hewston was received, and on motion of Dr. Stout, it was ordered that Dr. Hewston be solicited to withdraw his resignation, and that the Secretary be instructed to communicate the wish of the Society to Dr. Hewston.

The Board of Censors reported the names of the following gentlemen, as eligible to membership:

NAME.	SCHOOL.	DATE.
W. T. Lucas, Woodland	University of Pacific	1876
David Huber, Gilroy	Louisville Medical Institute	1841

The Board of Censors, to whom was referred the appeal of Dr. Johnson, beg leave to report that they cannot act upon it without a hearing of the parties, and that such a hearing cannot possibly be had at the present time. They therefore recommend that the case be continued until the next annual session.

The report of the Board was adopted, as read, and Drs. Lucas and Huber were duly elected to membership.

Dr. W. P. Gibbons, Chairman, read the report of Committee on Indigenous Botany.

On motion, it was referred to the Committee on Publication.

Drs. Oatman, Saxe, and Gibbons made some interesting remarks upon the facts advanced in the paper.

Dr. Ayer moved that Dr. Gibbons be authorized to furnish the charts necessary to the publication of the paper at the expense of the Society, and the motion being seconded, it was unanimously carried.

Dr. Stout, Chairman of Committee on Mental Diseases and Medical Jurisprudence, read his report, which was referred to the Committee on Publication.

The Board of Censors reported the names of the following as eligible to membership, and, on motion, they were duly elected members:

	SCHOOL.	DATE.
co.....	University of Pacific.....	1864
.....	University of California.....	1878

Chairman, presented report of Com-
ene and State Medicine, which was
ttee on Publication.

ing of the report on Medical Educa-
8 P. M.

asked the privilege to withdraw a
ast year, concerning the election of
ry.

lege was granted, and the resolution
.

Brown, Dr. W. G. Farwell, of the
rvey, was elected an honorary mem-

tion was introduced by Dr. Oatman,

uence of the silence of the profession,
medicine is very generally charac-
the secular press, by medical dog-
and by the public at large, and the
ed to its individual members through
xtent that the name was introduced
ve distinction to his homœopathic

he Medical Society of the State of
th the regular profession throughout
terly repudiate the name of *allopath*,
or *allopathy*, as applied to our prac-
ssion of medicine, knowing no sec-
practicing no exclusive dogma, or
its legitimate members in the treat-
but, on the contrary, giving them
e any remedy or any means whereby
ck may be promoted, their health
prolonged.

ented and read his annual report,
committee of three for examination,

the committee to consist of Drs. Saxe, Simpson, and Kirkpatrick.

Dr. Oatman, Treasurer, moved that the Secretary be authorized to liquidate the note held against this Society by the San Francisco Medical Society, as he, the Treasurer, would be absent at the close of the session. Carried.

Dr. Ayer moved that the President's address be referred to a committee of three to report upon the recommendations made therein in regard to the establishment of a State Hospital for Consumptives, and a State Botanical Garden, which was carried.

Dr. Saxe, Vice President, appointed Drs. Ayer, Gibbons, and Nixon.

On motion, the meeting adjourned until 7 P. M.

EVENING SESSION, APRIL 16TH, 1879.

The meeting was called to order by the President at 7:30 P. M.

The minutes of the afternoon session were read and approved.

Dr. Ellinwood, Chairman, read the report of the Committee on Education, which, on motion, was referred to the Committee on Publication.

Dr. Ellinwood presented a paper upon Medical Text Books by J. B. McMahan, San Jose, which was also referred to the Committee on Publication.

The report of the Committee on Histology and Microscopy was referred to the Committee on Publication.

Dr. Q. C. Smith presented a paper upon the treatment of Puerperal Convulsions by Galvanism, which when read was ordered referred to the Committee on Publication.

The Committee on Publication, Dr. G. G. Tyrrell, Chairman, presented their report, which was accepted.

Dr. J. O. Hirschfelder exhibited and explained the working of the Kymographion, illustrating by experiment upon a living dog, blood pressure, and how it is effected by

nes certain medicinal substances, pilo-

ors presented the following names, and
dmission into the Society:

	SCHOOL.	DATE.
co.....	University of California.....	1874
co.....	University of New York.....	1864
.....	Bellevue College, N. Y.....	1877

g been read and approved, the meet-

SESSION, APRIL 17TH, 1879.

lled to order at 10:30 A. M., President

read the following names as constitut-
committee to choose officers for the

n Joaquin; J. T. Wells, Kern; H.
Walker, Contra Costa; Q. C. Smith,
rt, Plumas; S. Holmes, Santa Cruz;
ncisco; C. A. Kirkpatrick, San Mateo;
ta; W. A. Washington, Merced; C. C.
M. M. Chipman, Santa Clara; A. B.
Thos. Ross, Yolo; M. B. Pond, Napa;
e; P. B. Miller, Butte; E. B. Robert-

y, Chairman, read the report of the
ery, which was referred to the Com-
n.

introduced some cases illustrating the
the knee with removal of lower end
condyles. These cases excited much
nted a successful case of cure of aneu-
xternal illiac. He also exhibited some
al and vesical calculi, lately success-
n.

The committee to whom was referred the report of th Treasurer, reported that the accounts were correct. Th report was accepted and committee discharged.

Dr. L. M. F. Wanzer, Chairman, read the report of Com mittee on Diseases of Women and Children, which, o motion, was referred to the Committee on Publication.

The committee appointed at the last session upon Medica Experts, asked further time, which was granted.

The committee appointed to report upon the recommen dation in the President's address upon the establishment o a State Hospital for Consumptives and a State Botanica Garden, presented the following report:

MR. PRESIDENT, GENTLEMEN AND LADIES OF THE MEDICA SOCIETY OF THE STATE OF CALIFORNIA: Your committee t whom was referred the subject matter of the recommenda tions of the President in his address, have had the sam under careful consideration, and most respectfully repo that they are deeply impressed with the importance an urgent necessity of having the State found and provide fo its support a "State Hospital for Consumptives," i accordance with the plan of Mr. John S. Hittell, in his ab paper upon that subject. Your committee are also co vinced that great sanitary benefits would result from plan ing forest trees in different portions of the State, and th the medical profession and the public would derive man advantages and much good by having a State Botanical Ga den which shall be accessible to all. That the subject ma be fairly presented to the public and legislation secure upon the same, your committee would recommend that special committee of three be appointed to endeavor t have such laws enacted as will secure these most desirab objects, believing and fully realizing that such a course eminently in the interests of suffering humanity.

Respectfully submitted.

WASHINGTON AYER, M. D.
A. B. NIXON, M. D.
HENRY GIBBONS, JR., M. D.

port was accepted as read and the
.

ors report the names of the following
ship, and recommend their election:

	SCHOOL.	DATE.
.....Jefferson Medical College		1875
cisco.	Dartmouth Medical College	1863
.....	Medical College of the Pacific	1876

were duly elected members of the

munication was read from the Com-
from the Alameda County Medical

SAN FRANCISCO, April 17, 1878.

ND MEMBERS OF THE CALIFORNIA STATE
The committee of delegates of the
ical Association, would report in the
that about fifteen months ago Dr.
membership, and was rejected by a
gular meeting of the Alameda County
for what were considered good and

J. S. ADAMS, M. D.,
mittee of delegates from Alameda
iation.

of Dr. Bushey was referred to the
ical Association, to report at the next

an, read the report of Committee on
, on motion, was referred to the Com-

introduced the following resolution,
on: That a committee be appointed
nnual session of the Society, upon the
nd the contagion of good health in
ian medicine.
esented the petition framed by the

committee appointed to petition the U. S. Senate in behalf of Ex-Surgeon General W. A. Hammond.

On motion, it was re-referred to the committee.

Dr. A. B. Stout presented the report of the Committee on Laws Regulating the Practice of Medicine in the State of California.

On motion, the report was received and the committee discharged.

Dr. Oatman moved that a special committee be appointed for the ensuing year, to consider the whole subject matter of laws regulating the practice of medicine, to whom shall be referred the report of Dr. Stout, and that the committee be instructed to endeavor to secure the passage of a law restraining druggists, apothecaries and chemists from prescribing or practicing medicine or surgery, which was carried.

On motion, the meeting adjourned until 2 P. M.

AFTERNOON SESSION, APRIL 17TH, 1879.

The meeting was called to order pursuant to adjournment, at 2 P. M., President Orme in the chair.

The minutes of the morning session were read and approved.

Dr. Grindley was invited to a seat in the convention.

Dr. Thos. Green presented an interesting case of elephantiasis occurring in a young lady.

Dr. S. M. Tibbitts presented his resignation to the Society, in consideration of his age, having been fifty-five years in active practice, and asked its acceptance.

Dr. Tyrrell moved that the resignation of Dr. Tibbitts as an active member of the Society be received, and that he be elected an honorary member of the Society, which was unanimously carried.

The Committee on Nominations reported, that at a meeting of the committee held this morning, the following officers were nominated for the ensuing year:

axe, of Santa Clara.
rst, F. W. Todd, of Stockton; Second,
hasta; Third, C. G. Kenyon, of San
. A. Washington, of Merced.
s—F. W. Hatch, Jr., of Napa; Thos.

ıtman, of Sacramento.
C. N. Ellinwood, of San Francisco; C.
cisco; P. Wheeler, of Oakland; G. L.
ento; C. A. Kirkpatrick, of Redwood

niners—C. M. Bates, of San Francisco;
n Francisco; C. Cushing, of Oakland;
an Francisco; Jas. Simpson, of San
of San Francisco; A. H. Agard, of

hurtleff, of Stockton; H. N. Rucker,
ly, of San Jose.
ing, San Francisco.
ectfully submitted.

C. CUSHING, Chairman.

oved that the report be received and
amed be elected. Carried.
W. Ayer, the election of officers was
y instructed to cast the ballot in favor
s President, and he was duly elected.
E. B. Robertson, the Secretary was
ballot for the remaining officers, which
ere elected.
presented the following resolution,
sly adopted:

Medical Society of the State of Califor-
est the American Medical Association,
eting, to memorialize the Congress of
pass a law requiring the proprietors of
ary medicines, offered for sale in the

United States of America, on and after July 1st, 1880, to accompany each bottle, box, and package of such medicines with a printed label or circular, plainly stating all the medicinal and other substances contained therein, and their relative proportions; or to adopt some form of legislation that will accomplish the purpose herein contemplated.

Moved and seconded that Dr. W. G. Wheeler, of Boston, Massachusetts, be invited to a seat in the convention. Carried.

Dr. R. A. McLean presented a patient upon whom the operation of excision of the knee joint was performed for angular anchylosis produced by white swelling of knee. The result of the operation was satisfactory. Also, exhibited a patient, from whom he removed successfully the thyroid gland. Dr. McLean also presented a patient, upon whom he performed the operation of excision of hip joint, with useful limb resulting.

Dr. Powers presented for Dr. Wilder a patient who was operated upon for capsular cataract, with decided success.

Dr. De Witt presented a young boy, who had been accidentally shot by his younger brother. The ball entered the frontal bone near its center, and traversed the brain four and one half inches, by measure, where it remained, and still remains without any serious result following.

Dr. Gibbons, Jr., presented the report of the State Board of Medical Examiners, which was referred to the Committee on Publication.

Dr. Gibbons, Sr., Chairman, read the report of Committee on Practical Medicine, which was referred to the Committee on Publication.

The supplementary report of Dr. G. W. Davis, on the same subject, was referred to the same committee.

Dr. Gibbons moved that the case of Mrs. Sawtelle be referred to the new Board of Censors, to report to-night. Carried.

The report of Committee on Topography, Endemics, etc., was, on motion, referred to the Committee on Publication.

, Chairman, read the report of the
etrics, which was on motion referred to
ublication.
E. B. Robertson, on two cases of Teta-
he Committee on Publication.
Board of Examiners, in the matter of
s and Czapkay, was sustained by the
men having failed to appear before the

port of the committee on petitioning
favor of Ex-Surgeon General Ham-
o the Committee on Publication.
nsors reported the name of Thos. B.
isco, Rush Medical College, 1872, for
was duly elected.
ointed the following committees:
—I. E. Oatman, Sacramento; H. Gib-
isco; G. A. Shurtleff, Stockton.
for Consumptives, and a State Botanical
e Legislature—F. W. Hatch, Sr., Sac-
bons, Alameda; W. Ayer, San Fran-

resented a paper upon Pelvic Cellulitis,
o the Committee on Publication.
ead a paper upon Esmarch's Bloodless
referred to the Committee on Publi-

g been read and approved, the meet-
:30 P. M.

SESSION, APRIL 17TH, 1879.

ccording to adjournment, at 7:30 P. M.,
he chair.
. P. Whittell, of Sacramento, on Gal-
istichiasis, and another on Coloboma of

both Irides from Concussion, were read by title, and refe
to Committee on Ophthalmology.

Dr. A. B. Stout desired to resubmit a resolution off
at last session.

On motion, the permission was not accorded.

Dr. J. T. Wells made some remarks upon the treatn
of pneumonia by ergot combined with digitalis, and clai
for it great success, on the theory that by producing
traction of the capillaries it thereby lessened conges
A discussion was entered into, in which Drs. Gibbon
Alameda, Simpson and Gibbons, Sr., of San Franc
took a part, and thought that the success claimed
Dr. Wells was as much due to the combination with c
drugs as to the ergot alone.

Dr. Q. C. Smith exhibited a specimen of comp
anchylosis of articulation on both sides of lower max
discovered in a skull supposed to be that of an Ind
Also exhibited malignant tumor of antrum removed
superior maxilla. The specimens being the property o
Boyce, of Santa Rosa.

Dr. A. B. Stout made some interesting remarks res
ing the morphological character and relation of the s
exhibited by Dr. Smith.

Dr. Jas. Simpson moved that the Committee on S
Hospitals for Consumptives be increased to five, which
carried.

The President appointed Drs. J. M. Briceland, of Sh
and R. W. Murphy, of San Francisco, as additional m
bers.

On motion, the dues of Assistant Secretaries were
mitted in consideration of the valuable services rend
during the session.

The Board of Censors, to whom was referred the cas
Mrs. M. P. Sawtelle, presented the following report:

At a meeting of the Board of Censors as a special
mittee, Dr. Ellinwood in the chair, the diploma of Mrs
P. Sawtelle was examined, and found to be signed by
following persons or Professors who are active membe

v York Homœopathic Medical Col-
'. F. Allen, J. E. Doughty, S. Lilien-
port adversely on her application for
ounds of irregularity.

C. N. ELLINWOOD.
P. WHEELER.
CHAS. E. BLAKE.
G. L. SIMMONS.
C. A. KIRKPATRICK.

ne remarks, upon retiring from the
. M. Brown and W. Ayer to conduct
ident to the chair.
ning the office of President, thanked
t terms, for the honor they had con-
ecting him President.
moved a vote of thanks to Dr. Orme,
for the able and impartial manner in
ed his duties, which was unanimously

, and it was carried, that a vote of
l the officers, for the efficient manner
formed their duties.
he session having been read and
adjourned *sine die*.

RRARD GEORGE TYRRELL, M. D.,
Permanent Secretary.

ment of the Society, the members
ake of a splendid banquet at the
red them by the medical profession
der the auspices of the San Francisco

ANNUAL ADDRESS

DELIVERED BEFORE THE

CALIFORNIA STATE MEDICAL SOCIETY.

BY H. S. ORME, M. D.

TO THE MEMBERS OF THE MEDICAL SOCIETY OF THE STATE OF CALIFORNIA: The expiration of another year affords us an opportunity of again assembling for the purpose of taking counsel of one another and rendering an account of our stewardship as guardians of the public health. As your retiring President I have endeavored to conform to established custom, which requires the preparation and delivery of an address upon some theme of general interest to the members of the Society. In casting about for a subject upon which to base a few remarks I have chosen to speak of the Epoch of Preventive Medicine.

Preventive, or State Medicine, has become, in our day, a great branch of medical science. The chief difficulty which its advocates encounter, arises from the fact that the medical profession is far in advance of public opinion upon this, as upon most other scientific subjects.

"In the history of the human race, three objects of man's solicitude may be indicated: first, his future state; next, his worldly interests; and lastly, his health. And so the professions which deal with these considerations have been relatively placed: first, that of divinity; next, that of law or government; and as man often seems to love gold more than life, the last is medicine."

And this recalls to my mind an incident related to me by a medical friend as occurring in Western Pennsylvania,

oung man had arrived at that age
fession or calling occupied his mind.
by pious parents, he was very ortho-
religion. He reasoned, that as life
immortal, men would pay well to be
nother and a better world. He was
the ministry, and after taking holy
led as pastor of a church, and com-
the spiritual wants of his flock.
covered that men did not take that
nd the grave, which, from its great
oped they would. His salary was
wolf often at the door. He saw he
Then he reasoned, if men do not
they must care for their health; for
ithout health? He therefore began
and after complete preparation, with
nd distinction, he opened his office.
professional brethren how sadly he
labors were toilsome, and its remu-
uncertain. Alas! he saw he had
! But our young friend was plucky
eved that there was something that
either. He reasoned, if men care
eir souls or bodies, there must be
prize more highly. So he came to
nust be their property, their wealth.
ced immediately the study of law.
and his own thirst for wealth, soon
He opened his law office, and by
nd his contests with his professional
t himself into notice, and was not
ge and lucrative practice.
imself, that he did all he could to
eserve the health and lives of his
vere so engrossed in the acquisition
ally starved him into the necessity
nd higher professions and choosing

a baser and more groveling one, in order to assist them in taking care of the riches which perish.

This spirit of indifference on the part of the people is necessarily a factor in the task to which the educated physician must address himself, and patiently await the unfolding and development of a more enlightened public opinion to aid his often thankless labor. The strong arm of the law, both State and municipal, is essential to success in the undertaking of public hygienic reforms, and as the source of all law rests with the people, the work has to be begun at the bottom.

It is a noticeable fact, however, and one that is extremely flattering to the great principle of popular self-government, that the cause of Preventive or State Medicine has achieved a greater impetus in our own country than in any of the older ones.

Dr. Ackland, of England, in alluding to this subject, says: "Imperfectly as yet carried out in this country, it is more fully developed in several continental countries, and, of late, in a noble manner in the United States." These words were uttered about ten years ago, and since that time, much has been done to justify the eminent distinction awarded to our country by Dr. Ackland.

Nearly every State and Territory has its medical association, while local societies exist in very many counties and cities of the United States, the avowed object of which is, among other things, the promotion of public hygienic measures, and the general advancement of public health.

Much, however, remains to be done, and a "National Bureau of Health" is among the agents of reform most needed at the present time. An Act establishing a "National Board of Health" was introduced at the late session of the 45th Congress, and became a law on the last day.

It elicited a great deal of discussion, and was finally passed as a compromise bill in lieu of several others previously introduced. Its full text is as follows:

c. Section 1. That there shall be
l Board of Health, to consist of seven
inted by the President by and with
t of the Senate, not more than one of
ted from any one State, whose com-
time when actually engaged in the
luties under this Act, shall be $10 per
onable expenses, and of one medical
one medical officer of the Navy, one
e Marine Hospital service, and one
artment of Justice, to be detailed by
several departments and the Attor-
vely, and the officers so detailed shall
on. Said Board shall meet in Wash-
ays after the passage of this Act, and
where from time to time, upon notice
the Board, who is to be chosen by
f, or upon its own adjournments, and
nd regulations authorized or required
ll make, or cause to be made, such
and investigations at any place or
ted States, or at foreign ports, as they
l in the execution of this Act, and the
cts.
ies of the National Board of Health
rmation upon all matters affecting the
se the several departments of the Gov-
ives of the several States, and the
District of Columbia, on all questions
or whenever, in the opinion of the
ay tend to the preservation and im-
blic health. It shall also aid in the
of Health, and of State or municipal
s, by such means and to such extent
necessary or desirable. And for this
zed to pay a certain portion of the
ate Boards of Health or quarantine
cretion; *provided*, that the amount so
exceed one-half the total expenses for
arantine authority; *and provided fur-*
s and information as may be required
d of Health, shall be furnished by the
rantine authorities thus aided.
Board of Health, with the assistance
cience, which is hereby requested and

directed to coöperate with them for that purpose, shall report to Congress at its next session, a full statement of its transactions, together with a plan for a National public health organization, which plan shall be prepared after consultation with the principal sanitary organizations, and the sanitarians of the several States of the United States, special attention being given to the subject of quarantine, both maritime and inland, and specially as to regulations which should be established between State or local systems of quarantine, and a national quarantine system.

"Sec. 4. The sum of thirty thousand dollars, or so much thereof as may be necessary, is hereby appropriated to pay the *salaries* and *expenses* of said Board, and the further sum of *five hundred thousand dollars*, or so much thereof as may be found necessary to *carry out* the *purposes* of this Act."

The yellow fever epidemic of last year has done much to attract the attention of statesmen to the importance of preventive measures, and to that newly awakened interest is probably due the foregoing Act.

It is certainly a step in the right direction, and a very important one. We already have State Boards of Health in about nineteen of the States, and are likely soon to have one in each State, which, acting in conjunction and harmony with the proposed National Board, ought to constitute a most vigilant and effective system of sanitary police during the prevalence of epidemics, and should be invested with full and sufficient authority under the law to make its mandates respected and obeyed.

The value of such medical Boards or systems in the accumulation of vital statistics cannot be overestimated.

Dr. Bowditch, the eminent leader in the great work of preventive medicine, makes the startling announcement of an estimate based on statistics which have been carefully accumulated, that there are "more than two hundred thousand human beings now slaughtered annually in the United States by preventable diseases."

In comparison with the estimated preventable deaths in England and Wales, placed a few years since at one hundred and twenty thousand, and more recently by Dr. Farr,

the Registrar General, at one hundred and fifteen thousand, the above estimate of Dr. Bowditch is perhaps not extravagant, considering the difference of population. For every one of these two hundred thousand preventable deaths might doubtless be counted at least three or four cases of preventable sickness.

The cost to the country, direct and indirect, of a term of sickness for a million people, and the funeral expenses of one-fifth of them, is something frightful when taken into consideration with the fact that in *every case of the entire million* so sick and dying, the sickness might have been prevented by an intelligent observance of the laws of health and the principles of public hygiene.

To prevent all this waste of life and expense, to shield the sufferers from the misery and distress which it entails, to preserve the ties of family and kindred unbroken, and to keep back the widows and orphans tears, is the task to which every philanthropic physician and every lover of his kind is invited. Some idea of the great public awakening upon this important subject may be gained from the statement of Dr. Bowditch that since the inauguration of the new epoch of State preventive medicine, which he places at the date of the establishment of the first Board of Health in the United States—that of Massachusetts in the year 1869—"more practical work has been done among the people, tending to prevent or crush out disease, and more valuable papers written illustrative of public hygiene the world over, than since the Christain era began. In every State there are active and earnest laborers in the field, and their number is daily increasing."

The field of labor for this important work is vast; in fact is co-extensive with the entire spread and growth of civilization throughout the globe.

This State Medical Society, and the State Board of Health of California, have nobly met and performed their part as State organizations; but far more can be accomplished if, in every city and county throughout this entire State, earnest and harmonious local societies could

be organized, that would take the matter in hand in their several localities. Let them first of all familiarize themselves with all existing State sanitary laws, and demand their enforcement by the proper officers.

They should further devise and prepare such additional legislation as experience in their several localities suggests as proper and expedient and circulate petitions among the people praying for their enactment.

The physicians of every State, by virtue of their intelligence and their natural guardianship of the public health, are rightly entitled to a fair representation of their profession in all legislative and municipal bodies; and the people at large would be the gainer if their experience and influence could be utilized in the framing of laws. As an almost unvarying rule, the medical profession is free from the taint of personal political ambition. No right-minded physician, of respectable practice, can accept public office without great personal sacrifice. Hence it is that a proposition to do so must be presented for his consideration, as purely upon the high ground of public duty.

The local medical societies ought to exert their influence to have certain of its members elected to the State Legislature. If such nominations were made regardless of party or political affiliations, and it came to be understood that the entire medical profession was pledged to exert its personal influence in their support, there would be little doubt of the candidate's election. Political parties would be swift to recognize such a potent element of strength. Even a meager representation of the profession is better than none. By courtesy they are placed on committees pertaining to the public health, hospitals, asylums, infirmaries, etc., and in every instance under present recollection where physicians have filled such positions they have left their influence for good upon the statute books of the State as a perpetual monument to their judgment and high appreciation of the great principles of State preventive medicine.

Hence it is that I venture to suggest, as a matter of right on the part of the profession and of the people at large,

ers they are, and as a matter of duty on
cians who consent to accept the task,
fort be made on the part of local medi-
this State Society, to send more phy-
Legislature and to the Congress of the

e of the profession in great emergen-
ics create, embellish the records of
civilized nation. The yellow fever
claimed of the profession many valuable
unselfish men, who, "without the hope
ve the proud consciousness of duty well
ed promptly to the call of suffering
ravely took their places in the line of
veteran soldier on the field of carnage
lose up the gap made by his fallen
of battle. I shall not claim the credit
in announcing that doctors continue to
ninent physicians believe that yellow
gin, and hence can only be prevented
easures. Quarantine regulations all
-for the fact that the disease is conta-
read from port to port, is not denied—
hat local State and municipal laws in
s, is what is needed to confine and
at similar laws in non-infected localities,
minating quarantine against ports noto-
l that is needed to prevent its introduc-
ans, equally eminent and distinguished,
al health is of too much concern to be at
entrusted to inefficient local Boards of
sional Congressional legislation. We
have a "National Health Board,"
fficered, and fully salaried, with abun-
defined, composed of scientific medical
xpert in yellow fever. Quarantine also
elusive feeling of security. Thorough
ent flushing of sewers, the destruction

by fire of all city garbage and refuse, especially rags and old clothes, and the education of the public, and especially physicians, up to the necessity of reporting isolated sporadic cases of disease which are of the least suspicious type, or likely to become epidemic, is the proper course to pursue in the line of preventive medicine. We must get at the origin of disease, go to the root of the trouble, and eradicate it. A large aggregation of human beings in a city or town will, of necessity, especially in Summer, produce disease.

The present attention of the whole civilized world is directed with painful apprehension and alarm, to the scourge of the Plague, as lately developed in Russia, along the borders of the Black and Mediterranean Seas. You are familiar with the details of its origin and spread, for every medical man, in Christendom and out of it, has doubtless made the subject a special study. My only excuse in referring to it here, is to note such measures for its suppression and confinement within the limits of its present area, as have come under my observation, and to place this Society on record as taking cognizance of the great peril to the public health which its possible spread to our country implies. Heroic treatment of the malady by the Russian government is being vigorously prosecuted, and the "purification by fire," is unstintingly applied to the hopelessly infected districts. A stern and relentless quarantine, amounting to absolute non-intercourse, has been instituted by all contiguous nations, who evince a determination to protect themselves from the fearful peril which menaces them. A military "cordon sanitaire," hems in the stricken Cossack hordes, while the "black death" does its fearful work, combated only by the brave and heroic physicians who throw their lives into the hopeless breach; and by the determined torch of the government officials, who rightly reason that it is better to annihilate whole cities in the infected regions, than to attempt milder treatment. Medical treatment of the plague so far, seems to be attended with but indifferent success. In fact it appears that but little can be done to save a well developed case of

ventive measures have so far proved the
The great drawback to all treatment of
; the Russian peasantry lies in the unsani-
of the lower classes. Cleanliness has to
orced, and the patient must be removed to
o well ventilated apartments. In our own
onary preventive measures have already
inst the possible introduction of the dis-
uising between the infected districts and

Woodworth, as Surgeon General of the
Service, issued a circular, approved by
regard to vessels coming from ports on the
Azof, the Mediterranean, or other places,
kely to be brought in contact with per-
se infected or capable of being infected

s in accordance with the provisions of the
f April 29, 1878, and after calling attention
f the plague, and its dangerous character,
of the customs, medical marine officers,
icers generally, that, until further orders,
e ports indicated, conveying any rags, furs,
rs, boxed or baled clothing or bedding, or
es liable to convey infection, shall enter
nited States until the articles have been
vessel thoroughly disinfected and ven-
ected articles are also to be disinfected or
geon-General may determine in each case.
Muscovite immigration, and the frequent
e articles named, from the ports near the
these regulations seem to be highly proper
ictly enforced."
and health laws which are likely to be
he Act of Congress just passed for the pre-
troduction and spread of contagious and
s, will be an efficient means of guarding
luction of the plague. The London *Times*

of Feb. 27, last, reports a meeting on the evening of the 26th instant, of the Epidemiological Society of London, to consider the subject of the plague. Many distinguished medical men were present, and papers were read, giving the latest obtainable data upon this all engrossing subject. Dr. E. B. Dickson, the physician to the British Embassy, Constantinople, contributed a paper relating to the pathology and etiology of the disease. It began to appear in the Autumn, continued through the Winter, and reached its acme of intensity in the Spring, and died out suddenly during the Summer season. The range of the thermometer during the prevalence of the disease was from 5 to 35 degrees. Between 30° and 45° the epidemic began to diminish. The symptoms—its glandular swellings, attack of carbuncles, sanguineous diarrhea, convulsive shakes—were described in detail; and in regard to treatment, nothing was suggested, but the fact was noted that in no instance on record was an attack of plague ever cut short by the use of quinine. Dr. Cabiadis, who had had much personal experience, held that the atmosphere which surrounded a person affected with the disease, was the true medium of transmission, and that the clothing and bedding communicated the malady. Dr. Dickson acknowledged with regard to the etiology of the disease, that its origin was utterly unknown. The proximate cause which predisposed an individual to an attack was poverty. It was styled "*miseria morbis.*" The poor were often attacked, the rich hardly ever. The prophylactic measures to be taken, were the isolation of the sick, the destruction by fire of their clothes, the white-washing with lime, and the free ventilation of their domiciles. The "*cordons sanitaire*" were valuable in checking the extension of the outbreak of the plague. The analogy of the plague to typhus was noted, and the opinion expressed, that England was prepared to deal with any amount of plague, if the disease should chance to appear in that country.

It is perhaps worth our while to inquire, whether the presence and unsanitary habits of the Chinese on this coast,

a possible incentive to plague. We
gely due the continuance, if not the
evere and terrible epidemic of variola
st several years ago, and may we not
"heathen Chinese" may at any time
in our midst that awful and dreaded

of food has attained alarming magni-
source of greater danger to the people
use already fastened upon us, than the
on of the plague. An evil that can be
ofitable, that challenges the cupidity
is extremely difficult to combat. It is
of a possible motive strong enough to
st of men to deliberately encourage the
ntagious disease into any community,
of both food and medicine has become
may say, so popular, that men engage
as really a legitimate and respectable

y Dr. Geo. S. Angell, read before the
cience Association of Boston, and pub-
h number of the New York "Sanita-
rtling exhibit of the diabolical accele-
g made in this infamous art. It quotes
ican as authority for the statement, that
vinegar sold in our cities is poisonous;
chemist analyzed twelve packages of
opper in all of them. "Flavoring oils,
preserved fruits, contain poisons. Cof-
chocolate, are adulterated with various
al mills in New England are engaged
usiness of grinding white stone into a
or use in adulterating flour, sugar, con-
and the hundreds of other products of
other white substances, such as cream
ng powders, corn starch, and other fari-

naceous foods. "Terre alba," or white earth, is another substance very commonly used in food adulterations.

Recent investigations made by Dr. Raymond for the Brooklyn Board of Health, of ten samples of "baking powders," from as many large New York manufactories, revealed in all, except one, large quantities of alum, a substance known, when so mixed, to be very deleterious and productive of dyspepsia.

In 1874, a "medical commission" of five physicians, appointed by the Board of Health of Boston, reported that over a million and a half of gallons of water were sold as milk in that city in that year, for which nearly $500,000 in money was paid. The water was liable to have been taken from barn yard wells, and impure streams contiguous to such yards, and probably was so obtained, causing typhoid fever and other infectious diseases. In one instance, thirty-four cases of typhoid fever were produced in twenty families by drinking milk mixed with water taken from a well standing near a cesspool. Other methods of adulterating milk, besides the use of water, are enumerated, formulas for which may be purchased from all milkmen by new ones engaging in the business, on payment of the required sum in cash. The writer is assured, upon what he regards as reliable authority, that thousands of gallons of so-called milk have been, and probably are now being sold, in the good city of Boston, which do not contain one drop of the genuine article.

In the matter of "oleomargarine," the adulterators were not satisfied to make "butter from bulls," or from the pure suet of freshly slaughtered bullocks, but have found a method of even further adulterating it with an article still cheaper than beef suet. It is estimated that in the year 1877, there was manufactured in this country about seventy-five million pounds of this "butter," and forty million pounds of cheese from this same material. In 1878, the butter thus manufactured is placed at over forty-five thousand tons. Analyses of these compounds have revealed horse fat, fat from bones, common candle grease, and similar

repared with a heat insufficient to kill
nter and breed in human bodies.
f medicines, wines, and liquors, is quite
nd Kentucky, famous for their wines,
ies, have, according to this writer,
insatiable avarice of the adulterator,
rye products are under suspicion. Cal-
laimed, are now made, or rather re-
ars, and the adulterated article, made
ten cents per gallon, is put on the
own American and European brands

urier-Journal is quoted as stating that
ns out of every ten now sold as brandy
de out of a vile compound of whisky
and chemical abominations, and adds:
what villainous stuffs brandy, whisky,
f, the present crop of drunkards would

other cooking utensils are, in the lan-
University chemist, "alive with poi-
f "marbleized ironware," so popular
epans, milk pans, teapots, etc., is
oxide of lead in soluble form. The
found in tinware, and reported on by
Board of Health, and by Dr. Emil
lphia. This evil of adulteration has
and unendurable all over the country,
New York, that a determined effort is
the medical profession to stamp it out
on. Dr. Squibb, after giving the sub-
and study, has drafted a bill which it
ork Legislature will enact into a law.
subject is as necessary in California as
ed, every State and Territory ought to
th this evil. To what nobler end can
their talents than to the protection of
It has been truly said by an English

prime minister: "That the health of the people is re
the foundation upon which all their happiness and all t
power as a State depends."

The planting and culture of forest trees, and the pro
tion and consequent preservation of our large tract
primeval forests, is a subject every way worthy of our at
tion. If we are to accept as true the charges of wa
destruction of our native timber which are being alu
daily made by the press of the State, there is indeed ca
of alarm. There can be no question as to the benef
influence of forest, in extent at least, to that with which
State is at present supplied, upon climate and the pu
health. The alignment of our mountain crests with he
timber is a wise and beneficent provision of nature fo
retention of the snows of Winter, which gradually
through the Spring and Summer months, and thus su
the plains and valleys below with pure water for the us
civilization, both in cities and in rural districts. The p
ing of forest trees both for health and general utilit
equally commendable with the preservation of existing
ests. A general interest has of late years been develope
the cultivation of the Australian gum trees, and the m
ment has met with the approval and encouragement of
medical profession; first, on the ground that the plan
and growing of any sort of tree was better than none at
and second, because of their known or admitted influ
in abating the malarial tendencies of any region
affected.

It is perhaps equally or more desirable that the ex
ment of growing the cinchona tree be tried in this State,
I feel confident that it would be productice of even be
results than have been acheived by the *eucalyptus glob*
There are several varieties of the cinchona tree, bu
are known to thrive in any region or section of cou
where a nearly even temperature prevails throughout
year, where it is neither too hot or too cold, and where
young plants can be protected from the direct rays of
hot sun. The Dutch and British governments have m

introduce and acclimatize the cin-
East Indian possessions, in Java and
ostan, where the mountainous regions
moisture and temperature for their
successful attempts at cinchona cul-
in Jamaica, Brazil, the Azores, and

cinchona culture can be successfully
ortions of the United States. And if
t was partially made to introduce this
eral years ago, but of the final result I
, however, that the sheltered regions
the conditions requisite for success;
om from frost in Winter, and not too
is an experiment at least worth an
al.
to speak of the formation of a State
the interests of medicine and general
essive countries are in advance of us in
ne has a botanical garden which would
settled nation of the world. To the
the State, an opportunity of examining
ious articles of the vegetable materia
nt stages of their growth, is or ought
hest value.
ibrary is a great desideratum in every
s need scarcely be enumerated here,
ance. The literature of the profession
nd varied, and is increasing in quan-
such a rapid rate, that no individual
essed of an ample fortune, can keep his
ied with all the valuable works. If a
be accumulated in San Francisco,
k of recognized value, and kept con-
new publications, on subjects pertain-
e, its value would be soon apparent in
vledge among the profession, to be in

no other manner so readily obtained. Provincial physicians would more frequently visit the city, in order to avail themselves of its advantages, and in so doing would have the additional benefit of a familiar intercourse and council with distinguished members of the profession residing here.

I desire to call your attention to the subject of the regular appointment of delegates to represent this Society in the American Medical Association. It is one of the oldest and most notable of the strictly professional organizations of America. Instituted in 1847, its experience and records embrace a period of nearly a half century of the most valuable medical history of the country. Its influence has always been exerted in helping forward the course of State preventive medicine, while of late years it has made definate exertions in that direction. The intermingling of men from all quarters of the Union, at its annual meetings, naturally contributes to the achievement of good work to that end. So large and important a State as our own, it appears to me, ought regularly to be represented in that body. It publishes annually valuable papers relating to State medicine, epidemics, climatology, etc., and their influence on the general public, especially upon intelligent persons, who are examining the subject of a healthier locality, with a view to a change of residence, is doubtless very considerable. As the climate of our State is worthy of all possible commendation and eulogy, the opportunity of setting forth its superior advantages through the medium of the published papers and reports of the American Medical Association, ought not to be lost.

There is another subject of a general nature, which might well demand your consideration. It is the establishment of a State Hospital for Consumptives. This matter was recommended to the Legislature in the last biennial report of the State Board of Health, by Dr. Gibbons, Sr., President of the Board, and has been enforced more recently, by Mr. John S. Hittell, in an able paper published in the Pacific Medical Journal. It is a subject of importance in several points of view, but my limit on this

only to recommend it to your atten-

to the consideration of an important
ncreasing the interest in the meetings
Society, and upon which action would

us all, many of the papers which are
etings, present topics suitable for dis-
h of their value by being passed over
ight to be a given amount of time
e, and it might be proper to limit the
h speaker.
extending the interest taken in the
the presentation of certain inquiries
ses and climatic relations of different
such inquiries to be answered verb-
esenting the different sections. Each
d on in turn to respond, or the mem-
y by name. The questions might
the prevalence of epidemics, or endem-
sorders, or typhoid fever, or the highly
climate and localities adapted to
ly those invalids suffering from or
ase of the pulmonary organs. The
f the mineral springs so abundantly
the State, together with the sanitary
pective localities, might be made the
d of inquiry. By such means, infor-
would be accumulated and placed on

known as the "Anti-Quackery Act,"
luable auxiliary in the cause of legiti-
e in this State. By its limited enforce-
of notorious quacks have been driven
fortunately, however, as is well known
er suit, involving the constitutionality
ending before the Supreme Court, and
upon the "law's delay," with such

patience as we can command, hoping nevertheless for a speedy decision.

No stronger proof of the value of such a law can be adduced, than that it meets the approval of a majority of the leading medical men of the Union.

We have just heard that the medical profession in Kansas have induced the Legislature of that State to pass almost identically the "Medical Act," as it now stands on the statute books of California.

A late leading Indianapolis paper thus alludes to the enforcement of a similar law in Illinois; it says: "Indiana has long been the paradise of quacks. Indianapolis, as the capital of the State, is cursed with the most and the worst of them. Since the passage and pretty general enforcement of the "Medical Practice Act," in Illinois, fourteen hundred quacks have been driven out of that State, and most of them have come to Indiana, where they are free to rob and murder at their own sweet wills. The Legislature has been called upon to protect the community, but it hesitates and falters. There is in this city a quack, who has murdered at least half a dozen patients by his gross ignorance of even the rudiments of a medical education, and the amount of money of which he has defrauded the public would build and endow a medical college."

Our Board of Examiners will submit a report of the work they have done this year. Speaking for the Society, I have one suggestion to offer for their consideration; it is, that the members of our "Board of Examiners" should be selected with care and judgment. The necessity no longer exists for them to be chosen to represent certain sections of the State. They should be selected because of their natural fitness for, or adaptability to the position, and their energy and availability. As frequent conferences are often necessary to secure the most effectual administration of the law, the Board should be so constituted as to permit the holding of meetings at which a majority of its members could be present, at a few hours notice; hence, four members should

ancisco and Oakland or their imme-

ers of importance requiring immedi-
is be arranged without necessitating
ant members, and in this way unnec-
professional business be avoided by
e expense of their attendance (by no
item), be saved to the Board and to the
hoped that no one not in full sym-
of the law, and ready to aid energeti-
nt of its provisions, will be chosen, or
upon the Board.
Society are not in a flourishing con-
. The Treasurer will submit to you
will no doubt offer such suggestions
he administration of our finances may
e ought to get out of debt at once, and
l raise just money enough each year,
t or otherwise is immaterial, to pay
no more. Let us pay as we go. If
advisable this year to invite the con-
ays, let us raise the money by assess-
es. I have no doubt that we would
ult, that our money had been well

ear, the dread archer, Death, has
s into our ranks with unerring aim
He has claimed those who were in
anhood and usefulness; he has come
sassin, and cowardly plunged his fatal
his victim; and again as the silent
nbidden into the sick chamber, and
ry invalid to follow. We shall sadly
ave been gathered hence. Dr. H. P.
nd valued member of our Society, and
th, was President of our State Board
. The other deaths were Drs. Way-
d Mehring. All active and esteemed

members. Our Committee on Necrology will doubtl mention them befittingly.

My friends, in returning to you the wand of author placed in my hand one year ago, I must express my gr tude for the flattering opinion of my humble abilit which the selection indicated. To be chosen to pres over a society composed exclusively of educated m engaged in the arduous task of investigating scientific s jects, and in the general advancement of human knowled is a distinction which ought to challenge the gratitude pride of any man. I have not been indifferent to sentiment, and have endeavored to appreciate the im tance and dignity of the position, and trust that I have erred in assuming that I may justly claim your indulge and charity, in whatever I have failed to meet your generous estimate of my abilities.

N PRACTICAL MEDICINE.

R., M. D., CHAIRMAN OF COMMITTEE.

practical medicine, from a standing
or the purpose, might be supposed to
of the last year's progress, changes,
hat department, both in our own and
hrinking from a task so weighty, I
ethren of the Society would prefer
lts of my observations and experience
of hospital practice in San Francisco,
rst of St. Mary's Hospital for six years,
lve years of the City and County Hos-
ill be drawn partly from notes and
for I confess to the almost universal
tioners, the failure to make and keep
essional work from day to day and
ought to be done with regularity by
cian.

ary to premise that hospital patients
age representation of the diseases of
ome largely from the ranks of the poor
have constitutions broken down by
ce. The mental stimulus to recovery
is wanting in a great proportion of
ickness in a hospital home, to health
l toil. In no other place is this more
alifornia, where so large a number of
olated from family and adrift in the

s of hospitals in California are mostly

men. Few women comparatively enter the wards, and scarcely any children.

Most prominent in the list of diseases, as to the number of its subjects, is pulmonary consumption. The victims of this malady flock to San Francisco from all parts of the State. In many instances they are in the advanced stage and come only to die. They never enter in the early period, when a chance of cure exists. By far the largest number are natives of Ireland. One would suppose that the change in the mode of life in coming from that country to this, the increased comforts and means of health, the nutritious animal diet, would fortify them against the invasion of phthisis. But the reverse appears to be the rule. This circumstance I have remarked for many years, until the conclusion has forced itself on my mind that the transition from a rugged mode of life with simple fare and much exposure, to the comforts and luxuries of a higher civilization, is a hazardous experiment on the human constitution. We observe it particularly in the native Indians, who, when transferred from their wild life to the domestic service of the white population, become remarkably sensitive to the causes of disease, and when taken sick, succumb almost invariably and without exhibiting any power of resistance. When I find an Indian in the hospital ward, I very generally expect him to die, particularly if he has the slightest pulmonary disease. The same observation holds good, though not to the same extent, in regard to native Californians of mixed Spanish and Indian blood.

The white American race are less prone to pulmonary disease. A very small proportion of this class find their way into the hospitals—indeed a small proportion from any and all diseases. In private practice, I think the same condition occurs—that is to say there is much less tendency to pulmonary consumption among native Americans than foreigners. I am sure this has been the case within my own observation, during the twenty-nine years of my practice in California. Transplantation of Americans from the Atlantic

certainly has not the same effect as
Celtic race.

vith what frequency the progress of
hen patients enter the Hospital, even
recently come from a climate much
urs. In quite a large number of cases
s to be able to leave the house and go
patients generally return in a few
er number remain with scarcely the
than temporary exacerbations, for one
longer, sometimes improving slightly
is was notably the case with three
ty hospital, lately occupying three
ho had been in the wards for three
ared that they were no worse than
ll these cases both lungs were studded
ntained cavities.

o the prospect of cure, pulmonary
very early stages, scarcely requires
o disease imposes on our profession
s. Before us is a fellow being under
death not to be accomplished at a
long course of torture, years it may
, hope and despondency are variously
ysical suffering. The humanities of
ing more, demand the interposition
es to alleviate pain and console the
spread comforts around the victim in
y. This service is due also on behalf
es. I mention this subject because it
m to regard our services as due only
d to abandon to their fate those hope-

in the treatment of all diseases which
sight of, viz: to give the patient a
f possible. Night without sleep is
sick. Cough and night sweats are
ances of repose to the consumptive.

For some years past I have been in the practice of depending largely on digitalis to allay coughing, adding it to such mixtures as are in common use, composed of expectorants and opiates. ℞—Tinc. belladonnæ ʒ ij; syrup. scillæ ℥ ij; sulph. morph. gr. iv; syrup. tolu ad ℥ iv; M. sig: A teaspoonful at bed time, repeated if necessary. The proportions of morphia, etc., to be varied according to circumstances. In old and enfeebled cases, it should be combined only with anodynes. Of the value of digitalis for this purpose I am fully assured.

For night sweats, there is nothing equal to belladonna or atropia. A pill of oxyd. zinci, gr. ij and ext. hyoscyami gr. iv, is often effectual. But half a grain of ext. belladonnæ added to it forms the most efficient agent for the purpose I have ever tried. If it should not prove effectual in that proportion, the quantity of belladonna should be increased. Atropia, in pill or hypodermically, is highly recommended by recent authors. The ancient remedy of aromatic sulphuric acid is also useful. A Dover's powder will often *prevent* sweating and procure a good night's rest. The dose should be fifteen grains. I never think of giving a smaller dose to an adult.

It is worthy of note that the night-sweats are not only arrested by the treatment referred to, but that they seldom return when the remedies are withdrawn. In the two wards under my charge there are commonly about twenty-five cases of phthisis in the confirmed or advanced stages, and not more than one or two of them at any given time have nocturnal sweats. The same may be said of hectic fever. At the present time there is not a well-marked case of hectic in the wards. Occasionally a patient complains of having had a chill or chills. Here a few anti-periodic doses of quinia or cinchonidia put an end to the trouble.

It is a matter of importance in the treatment of cough, night-sweats, etc., to change the prescription frequently. All medicines are liable to lose their effect by continued use. Everybody knows this, and yet the knowledge does not appear to be sufficiently acted on by practitioners. In

most all kinds, changing the medicine
fies the patient that there is healing
hange. It is a common fault to adopt
practice, and to adhere to a routine
the most successful practitioner who
se by itself, and who modifies his pre-
o effects and circumstances.
attendant of pulmonary and bronchial
pleuritic or it may be muscular or
few years past, I have returned to the
of treating such pains, which I had
obedience to fashion: *i. e.*, cupping,
by mustard, croton oil, antimonial
. Dry cupping and blisters have the
there is objection to the soreness of
he blister is kept in place only two or
ultice applied. Every day as I pass
me of the patients ask me for a blister.
ng of their pain, there is no appliance
ief afforded by them is marked.
no means a frequent accompaniment
pital, nor is it generally followed by
ease. On the contrary, in a large pro-
e is a decided improvement after a
f blood. Again and again I have wit-
ovement sometimes being almost per-
n was formerly employed as a remedy
ption, and often with reputed benefit.
en it was in universal use for hemop-
back to individual cases in the early
when I bled the same patient time
rn of hemorrhage, with manifest relief
s. Dr. Rush employed venesection in
hthisis to relieve the oppression and
ients, according to his statement, were
the loss of blood without an apparent
these cases he called it the "Anodyne

Among the drinks employed is *dilute phosphoric acid*, used at the pleasure of the patient to acidulate the water. It will occasionally give permanent relief from the most annoying thirst. Cod liver oil is employed habitually, and the patients are allowed to take it in any manner they please. Some succeed best with it unmixed, while others find the combination with creosote to agree best with the stomach. The mixture of cod oil and iodine is sometimes productive of good.

Within a year or two, extract of malt has been introduced largely in practice, both in Europe and America, as a concentrated nutrient, supposed to possess an extraordinary physiological adaptation in a large number of chronic disorders requiring the most perfect nutrition of the blood. It has been used quite extensively in some of the wards of the hospital, and in a number of my cases with excellent results. But I must confess not to have observed so much benefit arising from it as some writers have represented. Its combinations are various, for instance with cod oil, iodine, the hypophosphites, etc. I regard it as quite equal to any form of fermented or spirituous drink.

The drinks last referred to are employed in my wards only in moderate quantities, and in the last stage of disease, and more for the gratification of the patient than with any expectation of benefit. The whisky treatment of pulmonary disease, both in hospitals and private practice, I have observed with some degree of attention and interest for many years. But I do not hesitate to declare that the cases of benefit from it which have come under my notice, have been exceptional and rare. In the large majority of hospital patients, the disease has been developed during the free use of alchoholic stimulants, and under circumstances which would warrant the conclusion that alcohol, so far from preventing, had aided in producing it. Some two years ago, owing to the exhaustion of the hospital fund, the supply of liquors was suddenly cut off for a week or two. A number of my patients, perhaps eight or ten, in the last stages of consumption, were getting from four to six ounces

xpected some of them to die from its sud-
to my surprise they exhibited no bad
atiently and unharmed until the stream
its wonted channel. But my expe-
on detracted from the low estimate I
of the value of alcohol as a supporter

been recently introduced under the
hich claims to embody the nutritive
cereals, and to be superior to any of the
om barley alone. A limited use of it
vorably, and I believe it will prove to
t value.

s subject let me impress on the minds
portance and necessity of a State Hos-
es. The subject has been agitated in
l the members of our profession are
t on the attention of the people and the
stitution required by the interests of
resent circumstances, a large number
are drifting continually from the inte-
with the delusive hope of saving their
destroyer, but actually stepping into
t is time that something were done to
it. One or more health resorts, in well
he interior, would save many a life.

ls are well supplied with malarial pa-
whom come from the interior. The
and Bakersfield are the two localities
in this respect. The cases from the
sfield are the worst. A few malarial
s to San Francisco, coming from the
ity on the southeast. It is quite com-
who have lived for some time in a
hout suffering, to be seized with inter-
after changing their residence to San
nate of the seaboard developing the
ormant previously.

The form of malarial disease generally presented is an irregular intermittent of the tertian character. The patient gives an old history of ague, cured and returning, again and again. Nearly all have taken quinine liberally, but nothing else. An active mercurial cathartic comes first in the treatment, and then a few moderately large doses of sulphate of quinia or cinchonidia. The latter appears to be fully equal to the former in doses one-fourth or one-third larger, and it is much cheaper. Ten grains of the sulphate of cinchonidia, night and morning, for two days, are pretty certain to arrest the disease. After that comes the necessity of preventing a return. For this purpose, a repetition of an antiperiodic once a week regularly for a month or two is generally effectual. When the complexion denotes a long and deep impression of the malarious influence, as it commonly does in the Bakersfield cases, something more is necessary; for instance, a course of nitro-muriatic acid, or preferably, of the blue pill, with iron or other tonics. Arsenic is a famous old remedy in such cases, but I have seldom gained much benefit from it.

Within the last year I have treated a number of cases of troublesome recurring intermittent entirely with tincture of iodine, in the dose of 12 to 15 drops three times a day. So far, the success of this method is well marked. In one of the worst cases, a man who had been suffering for many months, and whose skin was sallow and almost jaundiced, only one chill followed the institution of the treatment, after which he was entirely exempt. The iodine, however, was continued for several weeks, when he left the hospital in perfect health. It may be that the iodine treatment is peculiarly adapted to hospital cases, for the reason that such cases present hepatic or splenic or other visceral derangements to which is due their resistance to simple antiperiodics.

Modern medicine is boastful of its progress, and the present generation of medical men look back with pity if not contempt on the ignorance of their fathers. But it may well be doubted whether the treatment of many of

diseases has been improved in the least
ıtics has not kept pace with physiology,
he kindred departments. Men have
nergies on more inviting pursuits than
edside and administering to the comfort
sick. The interests of science have, to
erseded the interests of the patient. It
r or later, all discoveries and all advance
rinciples must lead to improvement in
mportant diseases and a few specialties
rated that proposition. But at least three-
monplace derangements of health, such
tention of the practitioner in his daily
overlooked in therapeutic studies. In
ext books while enlarging on diagnosis,
er heads, have curtailed the treatment
of minor importance.

pply forcibly to the modern treatment of
With the majority of practitioners, one
therapeutics of this disease, viz.: quinine.
ning paroxysm is an easy task, and this
s left to himself, with almost a certainty
r the medicine is continued day after day,
, and then the dose must be increased.
manent relief from regular means, the
resorts to all kinds of nostrums, and is
me one of the really valuable combina-
ery has stolen from the armamentarium

th which the habit of intermittent fever
m after the first invasion, even when no
r to have been established, and when the
ot renewed, presents a subject worthy the
practitioner. In the treatment of such
rces should be brought to bear. I need
in regard to the means demanded when
nents exist. But it may be well to recall
ce, much overlooked in modern times, of

awakening a sensibility to the action of anti-periodics by active purging or vomiting. A dose of quinia which would be impotent of itself as a preventive of ague, may be rendered thoroughly effectual by such preliminary treatment.

Although quinia stands at the head of anti-periodics, it may be replaced with advantage by cinchonidia, "dextro-quinine," or "cincho-quinine," when the patient has become inured to its action. From a trial of these preparations, I am well assured of their activity as substitutes, in doses but slightly increased. "Dextro-quinine," which has been lately introduced, is undoubtedly a very active agent; and the testimony of a large number of disinterested men who have put it to the test, would seem to place it nearly or quite on a level with sulphate of quinia. My own experience of it accords with this view.

The preparations referred to possess a value growing out of their comparative cheapness. The enormous consumption of quinia all over the world makes it a costly drug. At present, the substitutes can be bought for one-half or two-thirds the price of quinia.

Typhoid fever is nearly always present in the hospital wards, but I do not recollect any period when there was so little of it as during the past Winter. The cases are generally severe and protracted, sometimes hanging for days between life and death, but very generally terminating favorably. One would infer, from the previous condition and habits of the average typhoid hospital patient, that a large proportion would die. But the very opposite is true. So far as my observations extend, men of middle age, accustomed to a life of toil, hardship and exposure, and careless in their general habits, withstand a siege of typhoid in the wards of a hospital decidedly better than younger persons of more vigorous and unimpaired constitution, with the better care and nursing of private practice. I can say with confidence, that for a period of fifteen years the fatality among my hospital cases has not been nearly so great as in general practice.

cability of typhoid from one person to
r witnessed any evidence of it in Cali-
this accords with the general expe-
ctitioners on the Pacific Coast. At no
the last fifteen years have the wards
the County Hospital been free from
and in no instance have such patients
noved from the contiguity of others.
have never known a solitary instance
en be suspected that the disease was
r to other patients or to a nurse or
e practice, when the disease *originates*
appears to spread by contagion from
er. But this should be attributed to
ion of the original cause, the victims
e same local influences one after an-
presents a similar feature, in requiring
to be superadded to the presence of
nal, to enable it to spread. In other
and not contagious.
ment, no peculiar method is pursued.
ly watched, and the local determina-
ays imminent, promptly encountered.
of quinia which were in vogue a few
introduced from Germany, are now
A few full doses may be useful in the
ay be given in connection with stimu-
exhaustion. But stimulants I always
es, reserving them until they are called
ength. Milk is the best basis of diet,
be employed if agreeable to the

er from the nose or the bowels, has
tendant of typhoid in my observation,
spital. From the bowels it has oc-
ntly and with greater fatality in my

private practice, and particularly when convalescence had begun.

Rheumatism and neuralgia are great pests in a hospital. A few years ago salicilic acid and its combinations were introduced for the treatment of acute articular rheumatism, and they gained the highest position, although they have not fully maintained their reputation anywhere. I have continued their use and regard them as superior to anything else. To be effectual they should be administered in large doses—ten grains of the acid or its combination with soda every two hours. An anodyne at night greatly enhances the effect. But very often all the benefit attainable from this remedy ends in a week or ten days; and then iodide of potass, colchicum, and other remedies should be substituted. The more acute and violent the disease, the greater the benefit to be expected from salicilic acid. The most violent and intractable case of acute articular rheumatism that I have seen for many years, occurred two years ago in my private practice, the patient being a lady of middle age. Salicilic acid was rejected by the stomach, and opiates, both by stomach and hypodermically, utterly failed to relieve the pain. Quinia only distressed the head and had to be abandoned. I finally resorted to salicin, in doses of ten grains every two or three hours. A few doses gave decided relief, and it was continued for four or five days, the patient taking in all nearly an ounce of salicin, with no appreciable effect on the head, or in any other way than to cut short the disease and accomplish a complete cure in one week. It was the best pronounced and most satisfactory case of abortion of acute rheumatism that ever fell under my notice.

Colchicum combined with morphia furnishes excellent results in sub-acute rheumatism, especially in gouty complications. I generally give a drachm of the tincture with one twelfth to one eighth gr. sulph. morph. three times a day. After a few days, purging comes on, when the medicine must be suspended. Relief is simultaneous with the catharsis, but the latter commonly continues and is liable to

In obstinate cases iodide of potassium
colchicum mixture.
on hand numerous old cases of chronic
f two or three years' standing, which
and doctor. They are mostly local,
of cases seated in one or both of the
The pain will sometimes gradually
ent from the hip to the knee, then to
e instep or heel. In one or two cases
nent in the latter, and was as invulner-
of medical art as if the heel had been

these cases requires some ingenuity,
tient has been so long accustomed to a
when it ceased, or if he has made up
ital is a good permanent home. Local
getic character must be made, and
try, such as tincture of iodine, rubefa-
monial ointment continued till it pro-
n, etc. Much benefit has been derived
wrapping up the knee, or ankle, or foot
es, renewing them daily for a week or
are an active stimulant to the surface,
ication if their use be long continued.
affected for ten or fifteen minutes daily
as cured some obstinate cases. It is
these cases to resort to hypodermic
, atropia, or chloroform. In sciatica,
minims of chloroform at bed time is very
st thrown in deeply into the cellular
f water alone occasionally answer an
There is no difficulty in weaning from
ject of hypodermic medication with
uting water, provided of course the
rom him. I had one patient of this
sleep every night for a fortnight by a
of cold water, and who finally himself
it, which was successfully done.

Aconite, by hypodermic injection, is a powerful agent for the removal of these chronic, localized pains. It may be used in the form of aconitia, one sixtieth to one thirtieth of a grain dissolved in water, or in the form of tincture of the root. I prefer the latter in the quantity of about 8 or 10 drops. The only objection to it is the severe pain which it produces. This will be mitigated and the value of the injection enhanced, by adding the eighth of a grain or more of morphia. But advantage may be taken of the effect of aconite when the pain is kept up by *attention*, or in suspected malingering. A hypodermic injection of ten drops tincture of aconite given every night, has induced more than one of my old hospital habitués, after very few repetitions, to walk forth with alacrity and bid a permanent farewell to his old home.

Diseases of the heart and large arteries are common in the hospital. Valvular lesions, as might be expected, are traceable in the majority of cases to a rheumatic origin, but in no small number this history is wanting. The mitral valve is the seat of lesion in the worst cases, the usual train of disturbing symptoms growing out of regurgitation. Some very interesting cases of hypertrophy from aortic insufficiency or stenosis occur from time to time. The largest heart I ever saw was in a young man, a patient in St. Mary's, who came under my care with extreme orthopnea and extensive anasarca. Gangrene in both legs resulted from the cutaneous distention, and extensive sloughing ensued and endangered his life. But the process of repair set in and he recovered so as to lie down at night and rest with comfort. His appetite and strength returned and he appeared almost restored to perfect health. One evening, after eating a hearty supper, he fell back and died suddenly. On dissection, the secret of difficulty was found to be a congenital contraction of the aorta at a point two or three inches from the heart, where the artery scarcely admitted the end of the little finger. The patient was a laboring man, of large stature and of exemplary habits. Except the heart, all the internal organs were sound. The

d respiration had no other cause than
truction of the blood current. Had he
dentary life, the contracted blood vessel
rfered with his length of days.
tic aneurism often trace its origin to
ular effort which was followed by pain.
roof of this seems clear; mostly how-
ecture. With great uniformity the sub-
e men who have been accustomed to
ts in a stooping posture. Stevedores
ctims. The patients have been mostly,
nkers. As a rule, the aneurismal lesion
atheromatous degeneration of the arte-
t to be dependent on a general rather

vitnessing the use of, the various expe-
the cure of aortic aneurisms, I have
n with the expectation of a cure. To
s is the only practicable indication.
y bodily repose, or rather abstinence
, and arterial sedatives, such as vera-
italis. Other means are required for
Under this treatment well developed
be kept in abeyance for years, the pa-
ying life without material suffering.
cases of jaundice in the hospital
undice, if the term be admissible, in
sion can be detected. About a year
epidemic tendency to jaundice, which
door practice, not only in San Fran-
rts of the State. For a period of six
ients affected with various diseases
ition of bile in the conjunctiva and
these slight and generally transient
rous instances occurred of well pro-
ne of which were in children.
rsued by me is simple and without
pill and nitro-muriatic acid. The

former is given continuously in small doses, suspending it on the first indication of ptyalism, and resuming it when proper. Five drops of the acid three times a day is the minimum dose. Attention to the bowels is a matter of course. But I would mention one important point, namely, that diarrhea, or a too loose condition of the bowels, is unfavorable to cure. There ought not to be more than one daily evacuation. Success has uniformly attended this treatment when the jaundice has not been due to chronic lesions.

Cases of cirrhosis, cancer, fatty and amyloid degeneration, etc., of the liver, are nearly always present in the wards of a large hospital. I might greatly extend these notes by referring to them, and to lesions of the kidneys, spleen, stomach, and other organs. But I am fearful that there is not enough of novelty or originality in my report to warrant its further extension.

AL NERVOUS TROUBLES.

. DAVIS, M. D., OF CHICO.

TAL REPORT ON PRACTICAL MEDICINE.]

amento Valley we very frequently have
rm of general or local nervous disease,
sure to that potent nerve poison, ma-
ou is quite frequently the exciting cause
as it exerts its most baleful influence
debilitating the nerves, more particu-
mpathetic system, rendering it suscep-
of the protean forms of disease upon
act of an exciting cause. Much has
the two great centers and the nerves,
rough the indefatigable researches of
ndfield Jones, Hammond, Brown-Se-
et notwithstanding the clear and lucid
men of science and profound learning,
ns have not passed into the channel of
act. We will have to tarry awhile
n get a thorough and distinct view of
e now see but dimly.

y, a physician must know little of his
able to readily recognize a true hyster-
interpret the meaning of some of the
portant manifestations of hysteria, such
cus, the sense of choking, the choreaic
essible sigh, and the impulsive crying.
ious malady, in its typical form, can
by any experienced practitioner, but
l nervous troubles recur in patients,

male and female (who are more or less exposed to that toxic element, malaria), free from every general symptom of the disease. These attacks of functional nervous troubles are of much interest and importance, and should be well understood and appreciated, lest they lead us into grave errors of diagnosis and treatment, making us mistake a simulated for a real disease, or *vice versa*. Like general hysteria, it is protean, and may simulate almost all the diseases we have to deal with; but the cases that are most likely to mislead us in our treatment are when these functional nervous difficulties put on the guise of tetanus, epilepsy, chorea, paralysis, retention of urine, or disease of the spine.

What I have to present to the Society is a clinical history of a few cases of nerve symptoms. I regret that I cannot give these groups a name, and yet I do not know but what it is as well; for in no department of medicine are we so often misguided by a name as in the treatment of nerve disorders. The cases I have to present belong to a class that we meet with quite often in the malarial parts of the country, and the symptoms are so constant, varying but little in each case, that I really think they are entitled to a name.

CASE I. Miss J——, age 19. A large, well nourished, sensible girl; bilious temperament. I was called to see her in haste, and when I arrived I found her in a semi-comatose condition; ascertained that she was menstruating and having a good deal of pain; was a victim of habitual constipation, and had gone five or six days without a passage; pulse and respiration quite natural; pupils normal; absence of rigidity of the muscles; no paralysis; her appearance was that of perfect quiet; dashing cold water into her face failed to move a single muscle. Ordered a purgative enema. A half hour after this I was called into her room and found the patient sitting on the bed, quite rational and disposed to be cheerful. Soon after the enema, I was told she aroused and requested to be put upon the chamber, and

ınt of hardened fæces. During a brief
ıer to gather some history of the case,
ant taken with a severe pain in the
t, stomach, and womb, which rapidly
ing as to demand all the aid possible to
sent in haste for chloroform and with a
pkin applied it to the nose. She had
aths of the vapor when she sank into a
ater again dashed into her face failed
sion, but in about an half hour I was
er and she awoke rational and quite free
time afterwards the pain came on as
the chloroform was again resorted to
remarkable that but a small quantity of
ired to cause her to sleep. Subsequent
use of the anæsthetic the pains were
producing complete anæsthesia. She
recovery, with but little treatment of
ves, and has had no attack since, but is at
im of headache and neuralgia. We
case of hysterical coma, but the name
ttle idea as to the nature of the disease.
me to mention at this point that just
is young lady's sickness she had returned
ives living in one of the most malarial
amento Valley, and she evidently pre-
malarial poisoning. It is a well estab-
o-pathology that an intestinal irritation
of the cerebral arteries, and this irrita-
spinal cord producing tetanic convul-
case there was evidently spasm of at
rebral arteries, producing coma; if the
ted the cord, as it sometimes does, and
of the muscles, we would have had a
lepsy; or had there been violent mus-
e would have had a case of convulsions.
g pain, especially in the region of the
have been simply an exaggeration of

the dysmennorrhea caused by hyperasthesia of the se
centers, and this susceptibility brought on by the
exposure to malaria. This seems to me the only po
way at least for explanation.

Case II. L. C. Male, age 35; habits active; has b
victim of intermittent fever for sixteen months; his ap
ance was decidedly that of malarial cachexia; has
troubled with constipation of the bowels for the las
years; without taking a purgative he goes from four
days without a movement; tongue coated, digestion t
bly good. Upon several occasions he was attacked
very perceptible nervous twitchings that were chore
their character; when these conditions were prese
seemed to have but little control of himself; there
partial loss of motive power. He had the unfortunate
of drinking from three to four cups of coffee at each
Was ordered nux vomica, ext. conii, calomel, and q
and directed to leave off his coffee. He made a firs
recovery in about two or three months. I think this
case of incipient paralysis, which was produced by his
exposure to malaria and the excessive use of coffee.

CASE III. Male, age 20; previous health had been
with the exception of chills for four or five months, but
the age of eighteen has been addicted to the use of
holic liquors; smokes a good deal, and has lately cond
a very strong and ardent passion for a young lady,
he was forbidden to visit.

August 9th.—When called to visit him, he was suf
intensely from neuralgia of the bowels—it was impo
to keep him in bed. A slight anæsthesia from chlor
gave him relief; the pains returned every few hour
were promptly relieved by chloroform.

August 10th.—An evacuation from the bowels
gave him much pain. After a short time, the pain le
bowels and went directly to his head—has evinced
symptoms hysterical in their character—is disposed t

m nux vomica, potassa bromidii, with
severe attacks.
n not so intense; had an action of the
first time without producing pain. Is
iron, quinine, with nutritious diet.
the last few days has had no return
proving and bowels becoming more
e iron and quinine to be continued.
pidly convalescing; appetite good and
ered the iron and quinine to be con-
e weeks.
wards he had one or two relapses in
uite severe, but the attack lasted only
n this case there were certainly causes
reck of the nervous system; malarial
sive drinking at a tender age, smoking,
ement induced by an intense, but to
ess love.

, female, age 25; has had chills for
siderably emaciated and anemic; has
euralgia. Was called to see her in
appearances in labor; the pains came
five or six minutes. On examination,
t at all dilated but much bearing down.
nodyne treatment, and as soon as she
influence the pains gradually ceased
a few hours had disappeared entirely.
er this I was again called in as much
when I reached her bedside I found
hand and knee performing the usual
r; the patient's face was flushed and
breath and bearing down with pains.
iness as quick as possible, fearing I
ender her assistance, but on making
ny profound astonishment I found no
l *no* movement of the uterus during
tisfied that there was no threatened

miscarriage. Of course I did not feel very much ex
over this discovery. I put her on anodynes as before,
the same effect. Subsequent to this her pains retu
every few days, sometimes moderate and again quite se
Finally opium gave her more than temporary relief. I
her nux vom., citrate of iron and quinine; gave her
freely of quinine for several weeks and with very de
benefit. After this she went the full time without
further trouble except several chills, and was deli
of a healthy child. About two months after confine
she had a return of the pains, but not severe. F
number of weeks I put her upon quinine and cod-live
and upon this treatment she made a pretty good reco
After moving from her location to one of a higher alt
she became strong and robust. This case I think was
of uterine neuralgia, and I give it in this paper, for
reasons: First—Because at the beginning it so cl
simulated a case of threatened abortion that I was dece
Secondly—Because we must rely chiefly upon the a
istration of quinia and less upon anodynes or anti-spasm
when there is malarial poison existing.

I very well remember being summoned in haste
one stormy morning in the winter of 1871, to ate
woman in labor; and when I entered the room she
grunting and pulling away at her nurse and sympath
friends at a furious rate, and when I stopped a moment
the stove to warm myself, she became very impatient
begged me to come to her assistance. On placing my
upon her abdomen you can well imagine my astonish
at finding it not the least enlarged, and on passing my
into her vagina I found the womb rather small and
what prolapsed but otherwise perfectly normal. My e
to convince her that she was not even pregnant, much
in labor, were unavailing for some time, and I am qu
that if there had been another physician at a moder
convenient distance she would have discharged me and
for him, so thoroughly impressed did she seem to be

she was pregnant and in labor. The patient lived between the San Joaquin and Merced Rivers and a short distance from their junction. She had been a victim of malarial fever for more than a year. She was cadaveric in appearance; the skin yellow, bowels constipated, perceptible enlargement of the liver and spleen, urine scanty and high colored, tongue coated and digestion poor; her pulse was rather strong but frequent, beat 90 to 100; temperature 99; her catamenia had been absent for seven months. At this visit I gave her several small doses of calomel and rhubarb; gave her hypodermic dose of morphia over the abdomen; applied turpentine stupes to the same. On leaving, I ordered several doses of bromidi potassa and elixir valer. ammonia to be given every three hours if required to keep her quiet, and a dose of castor oil to be given every four hours until her bowels moved freely, and in addition to this to use several times if needed an enema of warm water and castile soap. On visiting her the next morning I found the calomel, rhubarb, and two doses of castor oil, with the aid of several enemas, had forced an evacuation of an astonishing amount of hardened fæces. She did not rest well until several hours after this evacuation, and at the time of this visit she was feeling comparatively comfortable; skin moist, also tongue; less tenderness over abdomen and kidneys acting more freely. I put her upon a permanent treatment of quinine, iron and strychnia, and a pill—to overcome the habitual constipation—composed of podophyllin, nux vom., capsicum and rhei, with now and then an alterative dose of calomel. After this she had several not severe irregular paroxysms of fever, but no return of the false symptoms of labor. About two months from this time she had very much improved and had a return of her menses. I suggested to her husband that as soon as the weather became warm and settled that he had better move her to the mountains, at least during the Summer and Fall months. He did so, and the last time I heard from her, which was more than a year afterwards, she was in excellent health. This case would be placed perhaps by a very large

majority of physicians under the broad term "hysteria." I believe this and like cases belong to the province of practical medicine.

The treatment emphatically indicated was anti-malarial, and the train of symptoms that ensued was the fearful result of constant exposure to malaria, debilitating the wonderful system of nerves known as the sympathetic. Some authors hold that hysteria is as much a disease as any other affection and should be treated as such. Hanfield Jones is disposed to limit the name to such cases as are pure simulations of disease; other authors hold different views. Shall we deal with all functional nervous disorders even in females as hysteria? I think it will help us to arrive at a conclusion on this subject if we bear in mind one fact pretty well established in neuro-pathology, that the same nervous phenomena may be produced by very different causes. Suppose we have a patient in good health who has hysteria from a fit of anger, and most all of us have seen cases of this kind; then she or he richly deserves the odium attached to the name, and should have no other treatment than a bucket of cold water dashed into the face. But should the nervous derangements have been caused from frequent attacks of malarial fever, either congestive, remittent or intermittent, from which the vital energies have been exhausted, where there has been no excessive gratification of the sexual passion; no uterine difficulty of any note, and should the nervous troubles above cited supervene—should the patient be told that she has hysteria? I think not. Take for instance a young and lovely girl with health and rosy cheeks, who has been caused deep and heartfelt sorrow, on account of the death of a dear relative; who had no thoughts save those that are pure and holy, whose emotions are all tenderness and love, watching night after night at the bedside of the dying relative, around whose heart the tendrils of her own had entwined with a tenacity that death alone could separate; the tender emotions of love and affection wrought up to the highest pitch, nerved her body to endurance far beyond its normal

d when the last supreme moment came,
uld bear the strain no longer and the
s left without a controlling power. Such
en our tenderest sympathies, and what
ysician at such a moment could even
hysteria."

REPORT ON SURGERY.

By E. H. WOOLSEY, M. D.

As Chairman of the Committee on Surgery, I propose to offer some observations on shock—a subject of the highest importance to the surgeon, and yet one that has been generally avoided by surgical writers. I feel like apologizing to you for attempting to discuss a matter about which so little has been written, and so little seems to be known. The dismissal of *shock*, by the able editors of perhaps the greatest surgical work extant, "The Surgical History of the War of the Rebellion," as a subject "which has perplexed pathologists for centuries" (Medical and Surgical History of the War of the Rebellion, Part I, Surgical Volume, page 65), aptly expresses the difficu' v here involved. The literature upon the subjéct is meager, and for the most part chaotic. It is true that the text books contain valuable ideas regarding the *management* of shock, and that Messrs. Erichsen, Paget, Brunton, Morris, and a few others, have, of late, favored us with considerable information upon the subject, but it must be admitted that the latter is still obscure, and that shock is nowhere clearly differentiated from other conditions. Now I do not propose to attempt to add anything to, or discuss at length the theories respecting the *essential* nervous disturbance in shock, for acurate knowledge thereon seems to me to be, for the present at least, utterly unattainable. We know that the nerve-centers are affected in shock; we know this from certain phenomena with which we are familiar; we know that emotional impressions and impressions of injury are sent into the body and reflected back as symptoms of shock, but just what takes place at the nerve-inputs or centers, which

ions, we do not know, and do not at
means of knowing. On this point,
logy of shock is probably not more
of many diseases which we affect to
he boundary line of the knowable in
ot more distant than that which the
encounters elsewhere. A realization
ce exclude a vast amount of confusing,
ofitless speculation, and thereby ma-
is study. We will next proceed to a
consideration of the subject. We
s the thrill of a violent impression, acting
art. The *impression* may be due to
the mind, or to sudden bodily injury.
and *etiological* divisions of shock, *psy-*
he former embracing those cases in
ofoundly affected by fear, grief, horror,
ring those grave disturbances of cir-
on which follow and are immediately
tion, concussion, and solutions of con-
as physicians, tenderly as we may,
ead or dying, we read in the faces of
of psychical shock, the reflex of our
hearts. The prostration which occa-
the passage of the bougie is an
al shock, a palpable index of heart
he heart's action is the first *appreciable*
and but for such disturbance there
ble shock. This, however, is not new,
rson must some time have felt a *thrill*
ach the heart, and *thrill* is inferedly
shock, whether the latter result in
eart-beat or in death. The common
emotion with heart disturbance, by
based not so much upon poetic fancy
ind actually feel; and I know of no

more truthful or scientific description of psychical shock than that contained in the following couplet from Spenser:

> *The cruel word* her tender heart so *thrilled*,
> That sudden cold did run through every vein.

Here we have first an impression acting upon the heart, and then a lowering of temperature, in consequence of heart failure; and this is obviously just what occurs in physical shock. It cannot be denied that other portions of the nervous system beside that which presides over the heart, are at times simultaneously, or even specially affected in shock, since only on some such hypothesis can certain exceptional phenomena be accounted for. Still, we maintain that the influence of shock upon the general system is, so far as we are at present capable of determining, sequential to functional aberration of the heart. In short, we hold that it is clinically demonstrable, *that the symptoms of shock are signs of heart-failure*, and that this view is consonant with physiological and pathological considerations.

ETIOLOGY.

The causes of shock are almost as numerous as are the incidents and accidents of life. The operation of the agent or force concerned in the production of shock, depends, on the one hand, upon the nature of the impingement, and on the other, upon individual susceptibility to morbid impressions. In general terms, it may be said that the degree of shock is proportionate to the degree of susceptibility, and to the velocity and intensity of the impulse; *i.e.*, sensitive people are more apt to suffer from slight, and apt to suffer more from considerable moral and physical impressions, than apathetic people, and the more abrupt and powerful the blow, the greater will be the *thrill* or shock. As a rule, the tranquil nature has greater powers of resistance, and vice versa the "man of nerve" is usually a calm man.

Still, excitable people frequently exhibit conspicuous self-control; nor can this be wondered at when we remember

eristically endowed with *hope*, which
the psychical equivalent of physical
would seem as if the impressionable
extent protected by extraordinary
and appreciation. Phlegmatic peo-
and therefore less likely to run head-
once in, unless there be ample time
less likely to escape unharmed than
mpulse. The phlegmatic individual
ly to be shocked by injuries, because
dull or inappreciative; but let these
sitively thrilled by emotion or physi-
he resultant shock will be more en-
ock acting upon a sensitive-nervous
e natures often yield, but seldom break;
ield, but yielding, break.
arly the pyschical center of an indi-
by violence, the greater will be the
the miser will be more shocked by
ing husband by a knowledge of his
zealous professional by professional
an by a sense of revolting wickedness;
cal danger; and the bully by a stun-
d. A blow at the ruling passion will
a "center shot" may kill. Running
fact, that the greater the approxima-
to vital organs, the greater will be
natic rule laid down in every work on
ality from amputation increases pro-
roach the trunk, derives its force
deration.
redisposing causes of shock, may be
his will be readily admitted by those
xerted themselves, when they recall
y which is inseparable from fatigue.
increases with exertion. We are
han at evening; after a hard day's

work our nerve centers are inordinately sensitive. We are then more easily agitated and annoyed and injured.

The hunter presses the animal which he pursues to the verge of exhaustion, knowing that a slight wound then will more surely bring him into his power than the infliction of a much greater wound at a time when the animal's nervous force is entire. Dr. Livingstone, in his missionary travels, speaking of the effect of shock upon wild animals, says: That the eland will withstand a terrible wound, if inflicted while the animal is quietly feeding; but that when hunted—when his whole nervous force is imbuing the organs of motion, he can be dispatched by a wound which does little more than injure the muscular system.

The exhaustion resulting from excessive venery favors the recipiency of shock, because the nervous system is rendered extraordinarly sensitive by such over-indulgence. In short, exhaustion from any cause, from disease as well as from over-physical or mental exertion, enhances the normal susceptibility to shock, and, moreover, favors the development of the morbid processes inaugurated by shock.

Among the proper causes of shock, mental e notion ranks *first*, in point of frequency. Shock from mental causes varies greatly in intensity, and in its after effects. The immediate effects range from the merest sensation of cardiac disturbance to actual and permanent arrest of the heart's action. The after effects are commonly expressed in changes of feeling, habits, or appearance—of the latter, rapid decolorization of the hair is the most remarkable. The fact of the occurrence of this change is attested by numerous historical cases, and is alluded to by Byron in the Prisoner of Chillon, in the following words:

> My hair is gray, but not with years,
> Nor grew it white
> In a single night,
> As men's have grown from sudden fears.

All are familiar with the temporary heart disturbance resulting from ordinary mental emotion, and it is in the

ın to frequently find persons nearly

t that mental emotion is in itself
life, numerous historic instances
e case of the Janitor of King's Col-
d, is a conspicuous one, with which
niliar.

ılly regarded as a prolific source of
ı, we think, is not wholly warrant-
ries, pain is usually present, and
only an active and principal factor
ock, but also to exert an especially
fter, and it is probably on this ac-
to occupy its present prominence
ock. But this *seeming* relation of
e hand, has never been made out,
l, is negatived by the occasional
ainless shock, *i. e.*, shock accompa-
ıred parts, and by the very frequent
om surgical operations, made under
esia, and still more emphatically by
ether invariable non-appearance of
ng "the agonies of the damned"
ıtism, synovitis, and other excru-
ons. Now we have known patients
symptoms of shock from ordinary
d legs and arms, and even of fingers;
ed similar and apparently identical
lookers-on; and while it cannot be
as potent a cause of shock as emo-
to the view, of its being only acci-
the potential shock impression, just
tally associated with anger, and that
are chiefly attributable to the ex-
tions, and that, moreover, while it
in any sense conservative, its inju-
ay be very much less hurtful than

the paralyzing influence of those drugs which are commonly employed to dispel it.

Burns and scalds are usually classified among the causes of shock. It is quite probable that the nerve-centers at once become cognizant of the enormous nerve injury in these lesions, but scarcely probable that the central impression is in the nature of a *thrill*. The system seems to be *irritated*, rather than *startled*, and the constitutional phenomena rather the phenomena of pain than of shock. Without dwelling upon this matter, we may say, that the uniformly beneficial influence of anodynes in cases of burns, etc., serves to show the analogy pointed out, and to differentiate the systemic disturbance in these cases from that resulting from shock.

In regard to the great variety of traumatic injuries, we shall simply repeat, that, all things being equal, the more powerful the blow, and the greater the destruction and mutilation of tissues, the greater will be the shock.

There is, however, one class of injuries which I here desire to specialize as peculiar in their severity, viz., *railway injuries*. Mr. Erichsen first called attention to this fact, and was harshly criticized therefor. Having had a somewhat extensive experience in injuries of this sort, I take especial pleasure in adding my testimony in this behalf. Railway accidents produce greater concussion and greater destruction of tissue—in short, embrace a greater potency for harm to the organism—than any other, and I am surprised that any one familiar with them should regard them as other than exceptionally severe.

SOME THOUGHTS ON DIFFERENTIAL DIAGNOSIS.

Shock has been generally confounded with syncope and collapse. Mr. Hunter, Sir Astley Cooper, and Sir Benjamin Brodie, seem to have regarded shock as a distinct affection, but most *later* writers, while adhering for the most part to the teachings of these eminent men, have departed therefrom to the extent of so *confusing* shock with syncope and

der is at a loss to understand their
int. Mr. Savory, in his article on
s' Surgery, has incorporated therein
comprehensive study of shock; but
ally considering shock as *sui generis*,
ing a little obscure by a citation from
that "collapse, syncope, and shock,
n degree rather than in kind." Indeed
he enunciation of this idea by that
t just named, has exerted a marked
ters on shook since his time.

symptoms of shock simulate those of
but it does not necessarily follow, that
e between these several conditions.
n dependant upon cerebral deprivation
sult from simple hemorrhage, disease
great variety of causes, inclusive of
shock happens to be a sometime or
f syncope, does it follow that they are
or the condition of extreme prostra-
de through which most diseases prove
common, or less intimately related to
various other exhausting diseases, than
uld, therefore, be as *little propriety* in
ne of the diseases referred to as col-
latter term as a synonym for shock.
r to regard collapse and syncope as the
, is to utterly ignore the important idea
rd *shock*.

tend a person suffering from an injury,
difficult to determine for the moment,
on is one of syncope or shock, or whether
pendent of the latter. Again, it is not
at once, how much depends upon the
nd how much upon circumstances attend-
r on hemorrhage, pain and emotional dis-
ful study of the case, however, with a due

regard for the value of each symptom, will generally enable one to properly estimate the sources of danger.

PATHOLOGY.

Physicists have defined the waves of light and sound, but never the courses of thought and impulse.

The transit of an impression of injury, and the translation of psychological phenomena into physical disturbance, can not be appreciated by the senses. They are, probably, therefore, beyond the scope of the scientist, and without the pale of science, though possibly within the range of legitimate scientific speculation. Scientists, however, "reason from what they know," and it should not be forgotten that speculation divorced from facts is not scientific.

Now, we know that there are several different kinds of nerves, and various sources of nervous disturbance, and taking this as a point of departure, it might be possible to reason out the modes of production of the several different kinds of shock. As surgeons, however, we are chiefly concerned with traumatic shock, and have therefore most to do with peripheral nerve irritation or lesion. We know that from peripheric nerve injury, there may result several distinct symptoms, such as pain, sensations of heat, cold, and tingling, spasm, delirium, coma, paralysis, and disturbances of respiration and circulation; and while it must be admitted that several symptoms may result from irritation of a single nerve, just as several tunes may be played on one string, it is yet fair to presume that there are as many different kinds of nerves as there are classes of symptoms.

Some of the foregoing symptoms are obviously due to irritation of sensitive nerves, others to lesion of motor nerves, and it is now conceded that those disturbances of circulation, respiration, and cerebration, resulting from trauma, are caused by lesions of *non-sensitive nerves* which connect with functionary nerve-centers. It is likewise agreed that surgical shock may condition weakness of the heart, modification of the blood-vessels, and actual cessation of ordinary chemical interchange between the tissues and

hese changes are probably also due to
e nerves. Hence, in every severe sur-
ay be lesion of several different kinds
hich is capable of producing special
e.

organism may entirely escape, even
considerable local injury; but gener-
nore especially when there has been
the *thrill of the concussion* is followed
consciousness, and *temporary* arrest of
When this is the case, which may not
ud may *directly* kill—the return car-
never at once perfect or strong, the
lar and extremely weak, if not alto-
nsiderable time, and this together with
eficient cardiac inervation, often seem
prolonged by the *presence* of injured
f injured *non-sensitive* as well as of sen-
ore, in fact, by the former than by the
cases of shock where there is anesthe-
, the heart failure is usually greater
and amputation here, even during
in my experience at least, generally
and very significant reaction. (Cases
will be found in my reports to the
A parallel to this, is the influence
ce of a personal enemy, and the relief
parture.

eriments upon animals, made by Dr.
(on rabbits and cats, and will be pub-
e "Western Lancet"), it was found
ary arrest of the heart's action imme-
infliction of severe injury; that subse-
e heart's action invariably occurred;
eristic post mortem appearances were,
heart, (*b*) distension of the right side,
n of left auricle with dark fluid and
stension of the larger veins with dark

fluid blood, and (*d*), unusual redness of the blood contained in the lungs.

In short, the phenomena of shock observed in animals accord with my observations on man, and although I have never had many opportunities of studying the lesions of shock in the human subject, though many cases have proved fatal under my care, I am yet of the opinion that no marked incongruity exists between the foregoing deductions and the mode of production of shock here adduced.

The initial and chief disturbance in shock, *failure of the heart's action*, is noted in all the symptoms, and is emphasized in the phenomena of collapse. It is traced and measured by the thermometer, and is attested by the autopsy. The uniform distension of the right side of the heart and neighboring veins, evidence a redundancy of blood at the heart, instead of a want of it, as has been alleged. All explanations of the cause of the failure of the heart, based upon the draining away of blood from that organ, by remote vaso-motor disturbance, or by actual or supposed hemorrhage, are therefore untenable.

The damming up of both sides of the lungs—of the larger pulmonary vessels, and the right ventricle and left auricle with dark blood, and the long retention or stasis of blood in the lungs, as shown by its color, are irresistible proofs of deficient heart power.

The symptoms during life point to *over distension*. The paralyzing thrill of a severe injury brings the heart to a stand-still, and during the pause its cavities become at once over-distended. If death does not immediately occur, a struggle ensues—the heart is burdened with duty and enervated in power. The surplus blood in the heart is in the nature of an obstacle; if the latter be overcome, a restoration of power will come about, but if the heart be lacking in power, which is always the case when collapse follows, then the quantity of blood thrown from the heart becomes less and less with each contraction, and in a little time there is distension in systole as well as over-distension in diastole, and a little later on, it happens that the expulsive force of

is insufficient to drive the blood into the
h circumstances, the left ventricle has
o do, because no blood comes to it from
hen, the right ventricle acts longest, on
constantly stimulated by the inflow or
od crowding in from the venæ-cavæ. In
on rabbits, it was found upon examina-
fter death from shock, that the left side
ased to beat, but that the right side was
ntinued to contract, for several minutes;
mewhat longer than the right ventricle;
here digitalis had been given, the right
to contract for a *considerable* time after
, for above an hour. Moreover, in one
hat the hypodermic injection of digitalis
death (from violence), was followed by
ions of the right side of the heart—the
rfectly passive—which continued with
an unusual length of time; which tends
that digitalis is capable of evoking or
eflex-excitability of the heart, but that
centers may remain intact during and
rom shock; and that, therefore, the ener-
t coming on subsequently to the initial
is referrible to defective nutrition of the
t coronary circulation, which must needs
ent over-distension of the right auricle

REPORT OF COMMITTEE ON OBSTETRICS.

BY F. WALTON TODD, CHAIRMAN.

In the obstetric art, speculation is of little worth. It has no place for the isms and pathies of the ingenious innovator, but must rest upon that science which is the aggregation of principles that have stood the crucial test of experience; not my experience alone, nor yours, nor yet that of the united profession for a year, a decade, or even a century, but an experience which rises colossal like from all the dead years since Eve's throes with her first-born son. By the destruction of the Alexandrian library, and the subsequent check given to enlightened civilization in Europe by the invasion of the Scythians and Huns, many valuable discoveries of the Egyptian and Arabian physicians were as effectually lost as was the art of glass painting, while others, covered up in the crypts of monasteries, slumbered through centuries of mediæval darkness, to be rediscovered when the art of printing gave a new impulse to learning, and more rational means were then found for the relief of abnormal presentations, uterine inertia and consecutive hemorrhage, eclampsia, and every other impediment to successful midwifery, than charms and incantations.

The store-houses of the church tell us that in the dark ages obstetrics was not what it was in the earlier period or is now, and that the Egyptians practiced gynecology by means of the speculum, with more or less success. It is not my province, however, to review the history of a science with which perhaps you are more familiar than myself; nor shall I consume your time in the consideration of subjects pertaining to it with which our excellent journals are filled, but will confine what I have to say mostly to such

e come under the observation of the
s of our Society and State, as far as I
t an expression of them.
in the dominion of obstetricy which
ough knowledge of its correct princi-
esults, than the treatment of abortion.
ledge may and often is attended or
onsequences, in cases not directly fatal.
ave come to be regarded with indiffer-
not considered "blessings in disguise."
eat them very lightly, and yet to neg-
managed abortions are due impaired
nia, versions, hypertrophy with all its
ts, including subinvolution. By abor-
iscarriages of the fœtus, which take
he ovum has found a lodgment in the
the time when the child is viable.
ails among women that it is a very
atter to bring on the catamenia within
veeks after impregnation, but every
nce will concur with me that the flood-
l shock are greater at that period of
third month or any subsequent time,
t of accomplishment that the means
are almost sure to excite a high degree
erine and peritoneal, and sometimes
the latter is, I think, more often met
ns, when to the injury of the operation
n of the whole or a part of the pla-
e upon physicians great care in the
e cases, which will be thrown upon
me by the reckless, or criminal, or both.
many of them will persist in saying
g, and for this reason I advise, at least,
in every case of uterine hemorrhage.
les, in extremely hot weather, to see
urious flooding, whom I did not suspect

of an indiscretion, and I had to repeat my visit in consequence of my neglect of the above injunction. I found, notwithstanding the most positive denial of any impropriety, an old placenta lying in the mouth of the womb, and yet if I had not insisted upon making an examination, this bloodless, fainting woman of forty would have let me go away again without having relieved her; therefore I say always examine them, and under all circumstances, and be sure to remove the last vestige of the afterbirth; this I have always been able to do with the index finger of the right, pressing the uterus down with the left hand. I am led to believe that women are allowed to rise and assume their domestic duties too soon after having miscarried, and that serious trouble sometimes arises from this source, remotely if not immediately. Women getting up from these mishaps often complain for weeks of backache, pain in the hip and left side, and these are the cases which result in ulceration or erosion, and hypertrophy, and this to displacements. Local treatment by means of the speculum saves many of them from permanent invalidism, or chronic inflammation of the lining membrane of the cavity may lead to frequent floodings, sometimes alarming in their severity, and always embarrassing. For this condition injections of the iodine co. tr. have been highly extolled, but Dr. A. T. Hudson of Stockton has, on several occasions, met with excellent results and no accidents from an injection of *chromic acid*, followed by a sol. of carbt. potash. Cold water, applied to the abdomen and injected into the vagina was formerly the main reliance of the profession in these hemorrhages, but it is something more than a novelty that where these fail, vaginal or uterine injections of water of a temperature of 110° or 120° F. will not. I have no experience in the remedy, but as applications of warm water in rubber bags to the lumbar region have long been held to be beneficial, I cannot understand why they may not be equally so applied to the inner surface of the womb, especially, as Dr. Athill recommends, in cases of extreme

ne sedative effect of cold would be
the sequelæ of abortions, and most
the long train of nervous phenomena,
dynia, cephalalgia, cerebro-spinal irri-
ne present state of our knowledge will
iss these cases with the contemptuous
only hysterical. We are importuned
ve them, difficult as the task may be,
hod of doing this belongs to another
uty to point to these distressing dis-
ce of the vicious practice of criminal

out exception, of abnormal presenta-
ne under my observation, in a by no
have been in multiparæ, and in women
circumstances have felt compelled
nd assume their domestic duties too
t. Some things connected with these
believe that these facts bear some
er, and that to the subinvolution
positions imposed upon the enlarged
subsequent pregnancies, is made to
to the outlet as to cause the preter-
It might be said that if this was
od in subsequent births of the same
arily, for the hypertrophied condition
s on which it depended, may, in the
tion, have disappeared; and again it
case in a woman who had given birth
hout any unusual occurrence. After
n years, living with the same man,
od health, she had an arm presenta-
ner by version. In two years I deliv-
same way, with the same presentation.
she had a shoulder presentation. I
g it and bringing the head within
nd delivering her by that instrument;
ng wholly insufficient to effect it.

In this woman there would seem to have been some obliquity of the uterus which may have prevented conception for thirteen years, and which was partially spontaneously corrected, so that she conceived, but not so far restored but that it could have caused the three malpresentations which took place afterward, in each of which the child occupied very nearly the same relation to the mother.

I have regarded chloroform and the hydrate of chloral as great blessings to women in painful and protracted labors not due to inertia, and for several years have made use of the latter remedy with great satisfaction to my patients. Reasoning *a priori*, we might expect that the relaxation attending its use would cause an undue amount of post partum hemorrhage, and a somewhat extended experience with the remedy has demonstrated the correctness of the argument; not to any alarming extent, but I can well imagine that its use in those women who always flow inordinately might be the means of seriously embarrassing the treatment. It would be well in such cases, where chloral has been given, to be on the alert, and to administer, near the close of labor, a decided dose of ergot. With this caution, we have in this remedy efficient and safe means of not only shortening the duration of labor, but of mitigating suffering and preventing shock.

That the fœtus in utero sometimes acts as an irritating foreign body is not, in my opinion, sufficiently impressed upon the minds of students of medicine, either by our preceptors or text books. It is this which provokes vomiting, and in a few instances keeps it up until the woman is exhausted or the fœtus thrown off, and some of us have seen cases of eclampsia, if not all that we have seen, arising from the same source. And the multitude of reflex actions met with in the latter stage of gestation are all due to the same fact. Fortunately the remedies at our disposition are sufficient to control them, but I have in my mind the case of a very lovely woman who was permitted to die of

ting, who might have been saved by
And there are none of us who do
eatest duty in cases of eclampsia—
essure on the brain in those cases
, or quieting nervous excitement by
pia, and chloral or chloroform in those
, as speedily as possible, deliver the
is of paramount importance, for do
our patients from the effects of the
ely hope to stay the latter so long as
he uterus; and at whatever stage, or
find the os, we can always deliver
ring the membrane, and little time
g the woman this chance for her life.
rgeons have long pointed, with just
by Dr. Ephraim McDowell, of ova-
eady, thousands of women have been
would have died, and we can refer
to an operation first performed suc-
as of New York City, and called by
, from the section of the abdominal
delivering the woman, which prom-
Cesarean section. By it the risk from
r avoided, as that delicate membrane,
t at all endangered as in the latter
ers from embryulsion are also spared
child. That gentleman has reported
kind, in three of which the mothers
er two it was undertaken for the sake
hers being moribund. Four of the
nd the fifth had been destroyed by a
phalotomy.
very favorable showing, especially
the women when operated on is consid-
g exhausted by unsuccessful attempts

to deliver, and consequent long delays, a condition to which the great fatality of gastro-hysterotomy has been very properly ascribed. If, therefore, such results can be got under such extremely unfavorable circumstances, a remedy has been found which promises to reduce to a minimum the dangers of delivery in contracted pelvis, pelvic tumors and every other obstacle *per vias naturales*.

TEE ON PUBLIC HYGIENE AND TE MEDICINE.

ATCH, M. D., Chairman.

Gentlemen of the State Medical
e you on the favorable sanitary con-
e we last met in our annual convo-
npt from the inroads of prolonged
ease, and in all respects extremely
d, true, that the reports accessible
indicated the continuance of the
ed one of the principal subjects for
port of the committee, in different
t, if we except one or two localities,
nd so limited in extent and duration,
leasant reflections. It was only at
ear 1878, and during the first six
ear, that anything approaching the
pidemic was observed, commencing
nza, but soon, in some localities and
ting on the features of asthenic and
a. This, too, was of comparatively
off with the meteorological condi-
all probability mainly due.
ntering upon a review of the diseases
ate with the minuteness common in
ttee of which I have the honor of be-
appropriate to devote the time at our
tions upon a subject which, though
to possess great practical interest.

THE REGISTRATION SYSTEM.

The importance of a uniform and perfectly authentic registration of deaths has long been recognized. Its value has been accepted by sanitarians, and generally by the medical profession, as presenting the only means for the determination of the many interesting problems affecting the duration of human life, the healthfulness of communities; or, in other words, the value of life in different States or cities, or of parts of these as compared with other parts, and the inducement they afford for settlement, the annual gain or loss to communities, the effective strength of the State, and the other questions which a complete system of vital statistics includes.

But while the value of such a system of registration, and the fact of its vast importance in a social aspect, are thus fully admitted, experience has everywhere shown it to be one of the most difficult possible things to attain, or to so enlist the coöperation of parties necessary thereto, as to ensure its successful working. These parties are, according to the system attempted to be adopted in California, the physicians of the State, the Secretary of State, the County Recorder or Clerk, and the Secretary of the State Board of Health. Whether the latter of these would prove equal to the duties devolving upon him, there is no present means of knowing, that officer not having yet been fairly put to the test. It is believed that the Secretary of State has promptly caused to be distributed the blanks with which he has been supplied. Beyond this, the law requires the County Recorder to distribute these blanks to the physicians of his county, and the latter to fill them up and forward them quarterly to the Recorder.

It is known that some of the county officers have performed their duties faithfully; it is also known that some of them have not. The physicians of the State, some of whom are now present, can answer far better than I can how well their part of the work has been performed. Wherever the fault may lie, however, whether in the law itself, or in those

the fact cannot be questioned that
nd that we have failed of the bene-
ved from it.
appreciable extent, the defects of
so far as it relates to deaths only,
ed by voluntary contributions from
nts who have cheerfully, and with
y, given the necessary time to the
mortality of their several localities.
early so, as a basis for the construc-
r of any sure calculation as to the
n, they serve a useful purpose, in so
prevailing causes of deaths in dif-
State. The reports received, also,
Health, as at San Francisco, Sacra-
Santa Rosa, and some others, afford
ion. We are as yet in ignorance,
resent circumstances, must remain
growth and vigor existing within
of our climate, habits of life, social
owth or decrement of population—
as a State to-day growing in popu-
rces, and independently of the tide
ur births equal our deaths? If not,
taken as a whole, favorable to lon-
lopment of what particular disease
l from which are we uncommonly
ular localities are favorable or dan-
emes of life—to infancy on the one
he other? These are some of the
fect system of registration might
Whether we are ever to have such a
ests chiefly with the medical pro
nformation derived from the regis-
births, is, and must always be, the
sanitary work. "We must know,"
cretary of the State Board of Health
ow many deaths occur, and the dis-

eases which produced these deaths, and the localities, the atmospheric and telluric conditions which modify them, before we can act intelligently in the line of prevention."

In cities and towns where health organizations exist, it would be comparatively easy to carry out an accurate registration of *deaths* by requiring a physician's certificate to be procured by the undertaker, and by him presented to the Superintendent of the cemetery before burial is allowed. A little trouble would also enable the health officer of towns where no such strict provisions exist, to procure the important facts through the undertaker. It is not so easy, however, to accomplish the registration of *births*. For these, reliance must be placed upon the physicians and midwives; and those who have attempted the task of collecting the facts from these sources in a large city, can properly estimate the difficulties—nay, the extreme reluctance, sometimes, with which the facts are communicated. In small towns through the country, however, where the occurrence of a birth in the community is commonly known to all, or is made, perhaps, the subject of general rejoicing, the work would be comparatively easy, and the results, taken in connection with the deaths, marriages, and population, would afford valuable information as to the vital condition of localities. This, however, is voluntary work—it is the assumption by local Boards of Health of work which the Registration Act requires to be performed through other defined channels. It could not embrace the entire State, nor satisfactorily solve those great questions which concern the vital statistics of the commonwealth, and which, if answered favorably, as there is at present no reason to doubt, might present some of the strongest inducements to immigration. Viewed alone as a question of public policy, the system of registration ought to be encouraged in California; in this light, the subject is one which should enlist the coöperation, not only of the medical profession, but of the public.

The main features of the California law are doubtless familiar to most of those present. They may be briefly

or the use of all physicians are to be
etary of the State Board of Health;
the Secretary of State to the County
hey are to be distributed among the
the State; the latter are to make
ers, who are required to register the
transmit a certified copy thereof to
tate Board of Health, who shall keep
and deaths so certified to him, and
ally to the Legislature through the
. In the same manner marriages are
se performing that ceremony. The
e a salaried officer, is to receive a fee

ple enough for easy compliance; it
tion of those immediately concerned

usetts, much more strictly enforced
plex. The Clerk of the city or town
and record and index certain enumer-
irths, marriages and deaths. Parents
e births and deaths of their children;
birth or death in their houses; the
the death of his kindred; keepers
of correction, hospitals, prisons, and
ain exceptions for which special pro-
masters of vessels, of every birth or
their charge; and for every neglect
nths shall forfeit a sum not exceeding
, having attended a person during his
requested, within five days, furnish
ntial facts; and for refusal or neglect,
of *ten* dollars to the use of his town.
ker, or other person having charge
every superintendent of burials, shall
cts required to the Clerk of the city
return shall receive *twenty-five* cents.
ns are made to him, shall furnish a

certificate of the fact to the person making it, who shall deliver the same to the person having charge of the burial; and when any burial shall take place without the delivery of a certificate, the person having charge of the interment shall notify the Clerk, under penalty of twenty dollars. The Clerk is to make certified copies of his records to the Secretary of State, which records shall be *prima facie* evidence in legal proceedings; he shall receive from the city or town, for certifying a birth, *fifty* cents; a marriage, *eighteen* cents; a death, *twenty* cents for the first twenty, then *ten* cents; but in cities of over 20,000 population these fees may be regulated by the local authority. For each neglect of duty he shall forfeit not less than *twenty* nor more than one hundred dollars. Blanks books for the required records are to be issued by the Secretary of State, to be distributed by the Town Clerk. Tabular results prepared from the returns shall be made and reported annually to the Legislature.

This is the substance of the law.

It is complained by the State Board of Health that it is neglected, and that errors in diagnosis lessen the value of the returns. "To make the law effective," says Dr. Folsom, the efficient Secretary of the Board, "there should be a penalty for burying in any private or public cemetery without a permit." This is the prominent principle now, and for some years past, in force in Sacramento, under which complete returns are made monthly to the Secretary of the local Board of Health. The same provision was recommended by the State Board of Health for adoption by all local Health Boards; and if such Boards were organized, as required by the law, in all incorporated cities and towns, and the section referred to were enforced, a very satisfactory registration could be secured for the greater portion of the State.

The Michigan law, which the distinguished Secretary of the State Board of Health of that State has pronounced to be the best in the United States, unless recently amended, may be summed up as follows: It is the duty of the Super-

ip, and the Supervisor and Assessor of
therein, between the 10th of April and
scertain by actual inquiry or otherwise,
s which have occurred in their respec-
, or wards, during the year ending the
the previous year, and make returns to
eiving ten cents for each birth or death
hat in the city of Detroit these duties
by persons appointed by the Common
are to be recorded and returned to the
y one authorized to solemnize the rite.
record the returns, and transmit a
e records to the Secretary of State,
hree cents for each name returned.
e State Board of Health is made the
tistics, whose duty it is to prepare tabu-
eductions, and make a report annually
eglect to keep records or deliver certifi-
all be punishable by a fine not exceed-
ars, or by imprisonment not exceeding
cians and others attending deceased
o report to the Supervisor or Assessor
all be liable to a fine of not less than
fifty dollars and costs of prosecution.
ads of families, superintendents of
give information concerning births,
o a fine not exceeding fifty dollars, or
t exceeding ninety days. Neglect of
appointed to carry out the provisions
der the delinquent liable to a fine not
lred dollars and costs of prosecution.
required to prosecute under this Act.
necticut is said by Prof. Lindsley of
ss statutes upon this subject "in most
the purposes designed;" yet complaint
-observance of the law by those who
ng to give it efficiency. "The essential
ent laws on the registration of vital

statistics are," he says, "that there shall be provided and distributed to all persons who are likely to need them, blank forms for the certificates of births, marriages, and deaths; that such persons, viz., clergymen, physicians, midwives, coroners, and all who may be officially acquainted with these wants, shall fill out such certificates on every occasion, and return the same to the Registrar of the town in which such work occurred during the first week of the month next succeeding; also, that the Registrar in every town shall record the said certificates in books prepared and furnished for that purpose. The laws also provide that the Registrars in their respective towns shall obtain the same information for record whenever a birth or death has happened for which no certificate has been returned." The physician, I believe, receives a fee of twenty-five cents for each return made by him.

This reference to statutory laws might be extended, but sufficient has been said to demonstrate the general interest in the subject, and some of the difficulties in the way of obtaining complete reports. One of the remedies suggested by Dr. Lindsley is that to which allusion has already been made—the prohibition of burials without a written permit from the proper authority.

It cannot be too strongly urged upon the different local Boards of Health to adopt and enforce that section of the "Rules" which refers to this subject; nor can the medical gentlemen of every incorporated town or city do more to promote success, or more effectually further the local interests, than by insisting upon the organization of such local Boards wherever the authorities have failed in their duty to establish them. When the importance of vital statistics is once fully appreciated by the physicians of the State, and, through them, by the public, success will crown the efforts made to perfect the system; let every physician do his full duty in this regard, and such an appreciation on the part of the unprofessional, though possibly of slow growth, will ultimately prevail.

But however important the registration of deaths may be, taken especially in connection with that of births and marriages, it is very far from conveying a correct idea of the diseases prevalent in a given section of the country. It reaches only those diseases which have a fatal termination, but leaves us in ignorance of that large class of maladies which, thanks to a better knowledge of their nature and tendencies, to a more rational treatment, to a more perfect hygienic management, seldom figure in our mortuary tables. These diseases, it so happens, are often members of the very class about which sanitary medicine is chiefly concerned. They belong to what are usually regarded as being preventable diseases, or, if not positively preventable, at least capable of being essentially mitigated. They are often local, and traceable to a local cause, and at other times spread over wide areas, sweeping over helpless households with resistless fury. They are the endemics and epidemics of the country, against which the labors of the sanitarian are continually directed, and which it will be his proudest achievement effectually to stamp out. To this class belong whooping-cough, measles, influenza, or catarrhal fever, which frequently prevail for weeks in succession in particular localities without occasioning a single death. Even during the last two years, scarlatina has been reported from several localities by the correspondents of the State Board of Health without ever appearing upon the lists of mortality for these places. A stranger to our climate and State in their different subdivisions, on carefully examining the records of deaths for the entire State, if such a complete record were obtainable, would never for a moment imagine that such a disease as intermittent fever could be at all prevalent in California; or if, perchance, he should find a few cases indicative of malarial influences, he would be quite as likely to find them in the records of those sections of the State in which intermittent fever seldom or never originates, as in its favorite abiding place in the Sacramento and San Joaquin valleys.

To obviate this condition of things, to correct the false

impressions which grow out of them, and to lead to a more accurate knowledge of existing local influences, the

REGISTRATION OF DISEASES

Was some years ago proposed and commended both in Europe and in our own country. The plan has been with some success put into operation in Massachusetts and in Michigan, and to a limited extent in California; and, since the adoption of the postal card blanks, has been gradually advancing in favor, and even now admits of some useful deductions. These cards present several advantages over ordinary *blanks*. They are convenient, and involve no expense to the reporter; the names of diseases from which reports are desired are printed on the card, and as all that remains to be done is to indicate by figures the number of cases of each disease occurring under the observation of the reporter, the trouble and time required are reduced to a minimum. The diseases specified are *nineteen* in number, selected from the zymotic class—from those diseases which are supposed to arise from, or whose development is at least favored by local influences, and over which sanitary measures are commonly thought to have more or less control. It matters little, for the purposes of these reports, how many cases of fracture, how many of cystitis, how many of delirium tremens, or of toothache, may have occurred in Sacramento, for example, during any given month. Such information conveys no conceivable idea of the healthful or unhealthful influences prevailing there.

For the success of the system thus briefly explained, the voluntary coöperation of the profession is needed; and I know I may take the liberty here of expressing, in the name of the State Board of Health, its acknowledgments to those who have so kindly and generously aided by their contributions.

One thing seems to have prevented its more general acceptance—a mistaken idea as to its object and scope. It is not desired to know the precise number of cases of any zymotic disease occurring in a given locality, but to know

which, or how many, of the class prevail; differing in this respect from what is expected of reports of mortality. Hence, it is not sought to multiply reporters in any one locality, so much as to multiply the localities represented. A single physician, engaged in active general practice, is usually able, except perhaps in large cities, to convey correct information as to the presence of any one or more of the zymotic diseases. He will commonly meet with scarlatina, for instance, when it prevails there, and from the number of cases, from month to month observed, compared with the whole number of all zymotic diseases for the same period, it will be easy to obtain the ratio or percentage of its prevalence. An annual table or chart based upon this principle, and embracing all the towns, would be interesting and profitable. In large cities, a reporter might be required for each municipal division. The important point is to secure the services of the best physicians, as well on account of the extent of their observations, as for the accuracy of their diagnosis.

A system of disease reports, such as has been thus briefly sketched, introduced into all, or even half, of the towns and settlements in the different well-defined geographical districts of California, would eventually supply a more accurate index to the relation of these different districts to disease than can now be obtained from all other available sources. Were it practicable, as has been done in Massachusetts and Michigan, to reduce these reports to weekly intervals, their utility would be greatly enlarged; they would then become signals of warning, giving notice not only of the presence of an epidemic in any locality, but of its extent, the course and direction it is pursuing, the rapidity of its progress, thus affording time to those in the line of its march to adopt such sanitary precautions as circumstances may require.

But, even with *monthly* reports upon this subject, regularly and systematically made out, much good may be accomplished, as before alluded to, in throwing light upon

the healthfulness of localities and the climatic influences of different sections of the State.

In view of the importance of this whole subject, the writer, as one of the Committee on Public Hygiene, feels justified in submitting it to the attention of the Society, in this annual report, with the hope that some means may be devised by which the registration at least of births, marriages and deaths may be fully and generally secured.

If the law is not satisfactory, let us procure its amendment. At any rate, let us not, as a profession, be behind hand, or indifferent, in a work which has enlisted the active sympathies of sanitarians in every country, and from which will flow results so profitable to us and so important to the future of the State.

REPORT OF COMMITTEE ON MEDICAL TOPOGRAPHY, ENDEMICS, ETC.

BY H. NEAL, M. D., CHAIRMAN.

LADIES AND GENTLEMEN OF THE MEDICAL SOCIETY OF THE STATE OF CALIFORNIA: At the close of our last annual meeting I was requested by our worthy President elect to write an article on the county in which I live, and promised to try and do so.

I was soon a good deal surprised to see the announcement of my name as Chairman of the "Committee on Medical Topography, Endemics," etc., for the whole State, and feared that the presiding officer had made a mistake.

I have not attempted any report on the State at large, but have tried to make good my promise and have kept myself within the County of San Benito as a large enough field.

I take pleasure in being able to report to the Society that the members of this committee have each one contributed a short paper on the several localities where we live—and are all in attendance here except Dr. Fenn of San Diego.

I respectfully submit to the Society the following titles of papers, with the request that they be referred to the Committee on Publication, viz: "Topography and Climatology of Lake County," by Dr. H. J. Crumpton, of Lakeport. "Medical Topography and Endemics of the Southern Part of San Joaquin Valley," by Dr. J. T. Wells, Bakersfield, Kern County. "Medical Topography and Endemics of Merced County," by Dr. W. A. Washington, of Merced. "San Diego as a Health Resort," by Dr. C. M. Fenn, San Diego. "Medical Topography of San Benito County," by

Dr. H. Neal, Hollister. "Medical Topography and Climate of Santa Clara County, and Sewerage and Diseases of San Jose," by Dr. M. M. Chipman. The last named was not on the committee, but the paper was offered by the author and accepted by the Chairman.

MEDICAL TOPOGRAPHY OF SAN BENITO COUNTY, BY H. NEAL, M. D., OF HOLLISTER.

San Benito is one of the new counties of California. The territory within its limits was separated from the County of Monterey, and erected into an independent county by an Act of the Legislature of the State at the session of 1873–4. It was named San Benito, after the name of its chief water-course. The county has mainly natural boundaries, formed largely by the mountain ranges between the summits of which it lies. Those are members of the coast system of mountains. The Mt. Diablo range lies to the northeast, dividing it from Merced and Fresno Counties on the east or San Joaquin Valley side. Another member of the coast system, known locally and on some maps by the name "*Gabilan*," forms the southwestern boundary, separating it from the Salinas Valley in the parent County of Monterey. The water-shed of both mountains forms the legal line of separation from adjoining counties, east and west. As the two ridges approach each other towards the southeast, the county runs to somewhat near a point at the southeast end. The southern limit of Santa Clara County, formed in part by the Pajaro River, makes the northern or northwestern limit of San Benito. Its boundaries having been adopted from the work of nature, the outlines of the inclosed territory are very irregular, as might be supposed. Its greatest length stretches from northwest to southeast, and is a little more or less than seventy miles, and is nearly included within the 36th and 37th parallels of north latitude. From the summit of the Mt. Diablo range on the east to

that of the Gabilan on the west, is about thirty miles at the widest part, which is near the northern end of the county. It has no seacoast, though approaching near to Monterey Bay at the northwest corner. The area of the county is about 1,000 square miles, very little more or less. This is pretty nearly equally divided between valley, foothill, and mountain lands, with a slight preponderance of the latter. The town of Hollister was selected by the citizens as county seat, though situated near the northern end of the county. The population of the county, estimated by ratio of five to each voter, is between five and six thousand—probably nearly six thousand in number. Of this number about two thousand are residents of Hollister. The inhabitants are engaged mainly in agricultural pursuits and the raising of stock. Wheat is the main product of the cultivation of the soil. A few are engaged in mining operations, which produce some quicksilver and antimony. The usual variety as to the nativity of the people obtaining in most parts of California is found here. The Western and Southwestern States are largely represented. French, Italians, and Portuguese, predominate among Europeans. The native Californians, of Spanish descent, are numerous, but are, perhaps, not increasing in numbers in the county at this time.

As the mountain ranges bounding either side of the county are but a continuation of those rising on either shore of the Bay of San Francisco, and on the sides of the Santa Clara Valley, so also the valley embraced in San Benito County may properly be considered as a prolongation of the better known Santa Clara Valley, surrounding San Jose, which, after having lost some of its width and increased somewhat its elevation between San Jose and Gilroy, in Santa Clara County, widens out again and dips into a large open basin in its further course to the southeast. The larger part of this depression of surface and widening out of area lies within the County of San Benito,

and forms its chief agricultural resource, as it is estimated among the best wheat land in the State.

The word basin is a proper term here, for the drainage of this region does not fall into the southern end of San Francisco Bay, as might be inferred from the statement above made, that the valley is continuous with the Bay of San Francisco, as lying between the same lines of upheaval. But the side of the basin has been carried away next the ocean, thus affording exit for the waters coming into it, which otherwise would find their way to San Francisco Bay near San Jose, by the washing away of a low summit north of Gilroy. Appearances indicate that at one time this was going on.

The first break in the outer line of coast mountains south of the Golden Gate, occurs at the northwest angle of San Benito County, at which point the Pajaro River passes through the barrier, which seems, at some period, perhaps not very remote from the present, to have yielded to the accumulation of waters in the basin above or on the land side, letting them flow by a course of a few miles into the Bay of Monterey, which at this point approaches near to the depression in the mountain line above described.

The San Benito River has its rise near the southeastern end of the county, pursues a nearly middle course through the county, and after having flowed its whole length, gathering to itself almost the entire drainage of the county, joins the Pajaro near the point where it finds its way out of the basin through the gap above mentioned. The Southern Pacific Railroad, in its course into the Salinas Valley, follows the course of the water through the mountain after passing Sargent's Station.

There is much to be seen hereabouts, to bring the mind of even a common or careless observer to the conclusion above reached, that this basin was once filled with water. Numerous beds of washed gravel, pebbles, and bowlders of formations foreign to the surrounding strata, are mixed with sand-bars, and the whole lie scattered about and evidently deposited by the action of water, but too high up,

in many instances, to be affected by any stage of the waters of the present age. The petrified remains of whales and marine shells found in many places in the county, is evidence that the water must have been salt.

Casts of clam-shells are found embedded in the strata, and scattered about the surface high up towards the heads of the San Benito River. The writer has himself picked up in the bottom of a washed-out gulch, near the Pajaro River (but among the hills forming the gap spoken of), a segment of the petrified rib of a whale—same as those now caught at Monterey—broken into fragments after having turned to stone.

It would seem highly probable, therefore, that the Bay of San Francisco once extended over this basin, and that its waves met those of the Bay of Monterey over the oozy depths which have since risen to the dignity of wheat fields and gardens surrounding the cities of Hollister and Gilroy. The lowest depression of this basin, as shown by the levels of the Southern Pacific Railroad track, is at the north limit of the county, and may be put down at a little less than two hundred feet above sea level. The railroad track at Hollister is two hundred and eighty-four feet above sea level.

The Mt. Diablo range rises at Santa Ana peak nearly east of Hollister, to a height of 3,578 feet. At this point the mountain summits project out towards the valley, forming a prominent landmark from Hollister and the valley around.

In the same vicinity, but nearer to the center of the range, a point called Mariposa rises to the heighth of 3,680 feet, which is the highest land in the county, though at the edge of its area. I have been furnished with these figures from coast survey notes, by the kindness of Prof. Davidson, of this service. This range abounds in cinnabar in many places, and it is found in paying quantities near the Mariposa peak in this county. Quicksilver and antimony are both found together here, and the medical profession may here find both those much abused "mineral medicines" in

a state of nature. The western or Gabilan range rises in a sharp peak near the old mission town of San Juan, near the northwest angle of the county. The heighth is nearly as great as that of Mariposa, as measured by the eye, and forms a prominent object from Salinas, Monterey and Santa Cruz, as well as on our own side of the mountain.

San Juan was selected as a site by the Franciscan Brotherhood, and a mission founded there in the last quarter of the last century. Those *padres* were wise in their choice, for there is no finer spot for soil or climate in the county, or a long way outside of it. The church and some other buildings still remain in use by means of repairs of late years. The church was finished in 1795.

The question arises, what has all this geography and geology to do with the medical or sanitary interests of San Benito County? It will readily be seen, that if it be true, that the soil had substrata—had a marine origin, forming at one time the bottom of the sea—it will affect the health of the present inhabitants, favorably or unfavorably, in some degree.

This is especially the case as regards the water supply, which is mainly obtained by digging wells to a depth varying from a few feet to one hundred feet or more. Within the basin, the depth of wells averages about thirty feet, passing through strata of soil, sand and gravel, variable in thickness in different situations, and reaching the water in the town of Hollister, in beds of coarse gravel, mixed with sand, at a depth of about twenty feet. In nearly all of the wells the water is found to be what is called in domestic economy, "hard or alkaline." It probably contains lime, magnesia, and soda salts. No analysis has been made. The water, even in the basin region, varies a good deal, as some few of the wells afford "soft" water. A few others are quite brackish in taste, and this is the case over part of the site of San Juan, though at the other end of the town there is a spring, near the old church, yielding good, sweet and comparatively soft water. The water is mainly considered by the people as good for domestic purposes. It

furnishes those inclined that way plausible excuse to substitute for steady drinking other fluids more expensive, if not more wholesome. This is not found necessary by the people generally, but it must be admitted that it is too common, and that some of our medical men have been affected by this species of hydrophobia.

Artesian water has been obtained over a few square miles in extent near the coast part of the basin, opposite to its outlet, and six to eight miles north of Hollister, at a depth of about one hundred feet, the flow being abundant and rising above the surface of the ground. Wells have been sunk to a depth of about four hundred feet, five miles west of Hollister, but have afforded no flow of water, while further on in the same direction and nearer the foothills the water has been struck at a depth of about one hundred feet or less, and a flow obtained in several places near San Juan, on the opposite side of the basin, form the first mentioned flowing wells.

The city of Hollister was supplied by common wells until about two years since, when the municipial authorities authorized a corporation to furnish the city water by sinking wells in the same manner as artesian, and pumping the water from them and forcing it into a reservoir on the top of a hill beside the town, and about one hundred feet above the level of the streets. As the wells are only about seventy feet in depth, the water is thought to be nearly identical in its properties with the old wells, many of which are still in use. It has not seemed that the city water has made any difference in the health of the people as compared with the other supply. The city water has been analyzed by Thomas Price, Esq., of San Francisco, to whom I am indebted for the following statement of the solid ingredients contained in a gallon of two hundred and thirty-one cubic inches, viz:

Carbonate of Lime	7.776	grs.
" " Magnesia	6.928	"
Chloride " Sodium	7.644	"
Sulphate " Magnesia	7.957	"
" " Soda	9.632	"
Silica	1.430	"
Iron and Ammonia	0.127	"
Organic Matter	0.417	"
Total Solid Matter	41.911	grs.
Nitrates and Nitritis	Traces	
Free Ammonia	"	
Albumenoid Ammonia	3-10 part in 1,000,000	

It does not seem that the alimentary canal or urinary organs of those using this water for years past are uniformly affected by it in any special manner so as to attract the attention of either the public or medical men. The Epsom and Glauber's salts shown by the analysis, do not show their peculiar effects upon the bowels. It would seem that the human stomach and urinary apparatus can tolerate a good deal of deviation from strictly pure water and keep within the limits of health, when not *assisted* too much by other beverages "*to keep the water from hurting them.*"

A small valley named Agua Amarga by the native Californians—"Bitter Water" by Americans, affords only water tasting much like solution of Epsom salt, which it would seem to be from its effects on the human economy. The climate is very specially modified by the conformation of the mountains above described. The opening in the coast line of mountains lets in the sea breeze in its season, and in consequence, Hollister and the entire north end of the county has a climate very much like San Francisco, Oakland, and vicinity, though a little further removed from the ocean. From May till October the cooling ocean winds blow over this region almost every day from noon until about 6 P. M., reducing the temperature so as to make it pleasantly bracing for out-door pursuits during this portion of the year, which, but for this cause, would resemble more closely the torrid plains of the San Joaquin on the other side of the mountains. This influence is very well understood by traveling either north or south from Hollister far enough to get beyond the wind current, where the traveler

will find an atmosphere differing much in temperature from that left behind him only a little distance. The destination of this current seems to be the San Joaquin Valley, which it reaches in great part through a depression in the Mt. Diablo range corresponding to that in the coast line. The effect of this air current on the health of the dwellers here may be said to be favorable in the main. It is invigorating to those in health, and to many seeking health it proves a valuable tonic when taken in proper doses at proper times. Containing nothing of the malarious principle, it proves a panacea for the relief of those suffering from miasmatic poisoning, if they remain long enough within its healing influence.

The antiperiodics can here make for themselves a better reputation (and keep it up too) than in many other places in California. A true intermittent has perhaps never originated within the county limits. For this reason the cinchona alkaloids are less needed here and in less doses than in many other places throughout the State, though found very useful and indispensable at times. That part of the county within the influence of the sea breeze can not be considered as so favorable for the relief of those laboring under any of the stages of phthisis as other parts of the county not remote from Hollister, which stands in a location nearly central in the air current. As San Francisco does not claim to be the best place in California for consumptives, so this county cannot lay claim to it on account of sudden and frequent variations of temperature and humidity within certain limits during at least half the year. I have seen one advanced case of phthisis in a young man coming from a New England State, in which the life of the patient must have been prolonged by a residence near San Juan, though subjected to the climatic conditions above referred to. All the other conditions surrounding him were favorable, but he succumbed in about two years. I have seen a few cases of the disease among the lower class of Native Californians, but along with other constitutional vice. They are familiar

with the word phthisis as if it had been known amongst former generations of them.

As the rainfall is not so great as in the northern coast counties, the Winters are very open and enjoyable here, as the storms are not so frequent and long continued as to interfere seriously with out-door amusements of those in health or seeking health. In the estimation of the writer the rainy season in this part of California is preferable to the rest of the year for health and enjoyment. I wish here to refer to the record of temperature and rainfall kept by the Southern Pacific Railroad Company at their station in Hollister. The record has been carefully kept by the agent, and gives the maximum, minimum, and mean of temperature for each month as made up from observations taken three (3) times a day for the time embraced between the dates first of January, 1874, and first of May, 1879, with the exception of the month of December, 1875, when the record was interrupted by the burning of the depot buildings. The rainfall has been accurately measured and recorded during the same period. The record is entitled to confidence as kept by a competent and careful observer, Mr. John Kearns of the Southern Pacific Railroad. A tabulation of the whole is herewith submitted as made up at the general office, and promptly furnished at my request, together with the elevation of the railroad level at Hollister, by the politeness of A. C. Bassett, Esq., Superintendent North Division Southern Pacific Railroad:

TABLE SHOWING TEMPERATURE AND RAINFALL AT HOLLISTER, SAN BENITO COUNTY, FROM JANUARY 1, 1874, TO MAY 1, 1879.

	Temperature.			Rain.
	Max.	Min.	Mean.	
JANUARY.				
1874	64	30	46.29	4.04
1875	61	29	46.85	5.10
1876	61	30	45.49	2.13
1877	78	39	53.98	1.83
1878	66	26	50.34	5.98
1879	67	28	45.29	1.83
FEBRUARY.				
1874	64	34	48.54	0.96
1875	70	38	53.36	0.16
1876	71	34	48.07	2.77
1877	70	40	55.42	0.25
1878	63	40	51.44	6.61
1879	78	27	54.16	1.99
MARCH.				
1874	70	32	51.38	2.51
1875	69	35	52.26	0.50
1876	80	32	49.15	2.63
1877	85	45	59.73	0.53
1878	78	38	54.26	1.56
1879	89	32	57.25	1.90
APRIL.				
1874	80	44	57.07	0.36
1875	88	38	65.12	0.00
1876	86	39	61.90	0.18
1877	81	50	61.50	0.78
1878	83	39	55.90	1.40
1879	79	41	57.37	1.53
MAY.				
1874	88	46	60.92	0.37
1875	95	63	76.99	0.00
1876	84	48	67.51	0.18
1877	80	55	65.19	0.42
1878	90	49	63.55	0.00
JUNE.				
1874	94	50	66.56	0.00
1875	96	64	76.11	0.13
1876	100	58	74 43	0.00
1877	109	56	73.04	0.00
1878	95	48	62.75	0.00

TABLE SHOWING TEMPERATURE, ETC.—Continued.

	Temperature.			Rain.
	Max.	Min.	Mean.	
JULY.				
1874	92	56	68.26	0.00
1875	95	52	72.71	0.00
1876	94	56	69.66	0.00
1877	98	56	68.98	0.00
1878	87	54	64.27	0.00
AUGUST.				
1874	94	56	68.67	0.00
1875	100	59	74.88	0.00
1876	102	57	70.69	0.06
1877	90	56	66.91	0.00
1878	89	48	62.79	0.00
SEPTEMBER.				
1874	100½	52	68.56	0.00
1875	100	59	75.01	0.00
1876	98	58	68.10	0.00
1877	102	55	69.43	0.00
1878	96	46	64.41	0.00
OCTOBER.				
1874	80	44	60.45	2.33
1875	100	51	68.55	0.00
1876	79	45	62.28	0.88
1877	91	50	64.97	0.00
1878	90	40	59 92	0.29
NOVEMBER.				
1874	70	39	56.66	1.15
1875	74	45	57.02	7.68
1876	72	45	58.31	0.00
1877	75	40	56.79	1.03
1878	80	31	54.33	0.20
DECEMBER.				
1874	67	27	50.37	0.00
1875	No record.	.....	.....	.....
1876	63	32	47.71	0.00
1877	75	31	50.66	1.54
1878	77	21	46.88	0.53

NOTE.—Mean annual temperature for five years, 60.537°.

The time included in the table embraces the season of 1876–7, in which less rain fell than any rainy season since the advent of the Americans to the country, with the exception, possibly, of 1863–4. It also includes the period of lowest temperature in the judgment of long residents—judging from its effects on vegetation, etc.—and with which the record seems to agree as far back as it goes into the past. The mean annual temperature, as deduced from the five whole years in the record, is found to be 60.5 degrees. This "cold time" of 1878-9 commenced in November, continued through December, 1878, and January, 1879. The lowest temperature was reached in December, showing 21 degrees Fah. at sunrise, at Hollister. Another observer, near San Juan, found it standing at 17 degrees. During nearly this entire "cold time," the wind was in the northwest and continued to blow during the night, and produced the same effects on the organs of respiration that were caused in other places by it, though it did not reach pneumonia in many instances here.

The highest temperature observed by the writer was in June, 1872, when it reached 110 degrees, under the influence of a dry north wind, which sometimes, though rarely, prevails. The railroad record shows a maximum of 109 degrees in June, 1877. It is only rarely that 100 degrees is reached, and this is most likely to occur in the latter half of September, after the time of the sea breeze has expired. It also may occur when the sea breeze is interrupted for a few days, usually three days, which sometimes happens.

Any epidemics which have visited the county seem to have preferred the close of the dry seasons for their visit, and have taken their leave on the coming on of the rainy season. Those epidemics have been few, and of the zymotic class, with the exception of the influenza prevalent during the cold period just referred to above.

Since the residence of the writer in the county, nearly ten years, typhoid fever has been epidemic once in Hollis- [illegible] vicinity, and diphtheria has visited the same locality [illegible] epidemic form. The typhoid epidemic of 1872

[illegible] a goodly number of well marked and severe [illegible] without many deaths resulting. It took its leave promptly at the coming on of the rainy season late in December that year, and there have been very few cases in the county since, if we may except the practice of an eclectic brother, in which numerous cases are from time to time reported as "broken up and cured"—"*sick and well again*," in the space of a week! The last named cases are not in the above estimate of the disease.

The two epidemics of diphtheria had their beginning with us about the 1st of September, 1877–8 in each year, at which time it was prevailing more or less throughout the state, under all the varieties of its climate, from the sea coast to the Sierra slopes, in widely separated localities, with many other centers of population intervening, free from the disease at the time. It was not marked by any peculiar features here to distinguish it from the same disease elsewhere. The treatment most agreed upon and pursued amongst regular physicians has been based on nourishment, tonics, and stimulants. The two first are administered freely, without regard to febrile symptoms. Beef tea, animal broths, and milk are relied on mainly for nourishment. Good ripe grapes in their season are considered a good article of diet. Tr. ferri chlorid in full doses, frequently repeated, along with moderate doses of quinia four or six times a day, are relied on mainly as tonics. Brandy or whisky given with milk, and pretty freely used as the strength flags, seems to become necessary and proves useful in severe cases. Gargles of potass., chlorate potass., permanganate, and tr. ferri chlor. are used with good effects. This line of treatment has seemed to the writer to make the difference between living and dying in many of the cases in his own and other hands. There were numerous cases of such character that all measures signally failed from the beginning. In the two epidemics extending through the county, but largely confined to Hollister and vicinity, there were about forty deaths out of about three hundred cases of the disease. A number of adults were

affected by the disease, and two of the deaths reported were adult females.

It fell to the lot of the writer to have a pretty severe attack, in the midst of the second epidemic. This was followed in a month by paralytic symptoms affecting the extremities up to the knees and elbows, and continuing more than a month, interfering somewhat with duties connected with this report.

Although having contracted the disease while in attendance on cases, the writer believes that many of the cases originated from causes other than contagious influence. It has been known at one place to confine itself strictly to a few German families, and at another time and place to prevail only amongst a few Spanish families, though not isolated from other nationalities in either case.

There are no endemic influences at work, as before intimated, at least not of such marked character as to have called forth the attention of the people or their medical attendants as arising from causes peculiar to this locality.

The calculous affections of kidneys and bladder do not specially manifest themselves as might be supposed from the nature of the water used, as shown by the analysis submitted.

TOPOGRAPHY, CLIMATE, AND DISEASES OF SANTA CLARA COUNTY, AND SEWERAGE OF SAN JOSE. By M. M. CHIPMAN, M. D.

Santa Clara County is situated between 36° 55′ and 37° 30′ north latitude, and is fifty-three miles in length, extending northwesterly and southeasterly from San Mateo County, the head of San Francisco Bay and Alameda County on the north, to San Benito County and the Pajaro River on the south. In breadth it varies from twenty to thirty miles, occupying the space between the summit line of the main coast range of mountains on the east, and the summit line of the Santa Cruz range on the west—about three-

fourths of its area being comprised in the eastern and western slopes respectively and the foothills of the two mountain ranges, and about one-fourth in the intermediate level land or valley. The total area of the county is a little over thirteen hundred square miles, of which the valley supplies much the greatest proportion of the agricultural resources, and contains all but a small part of the population, which is at present estimated at about thirty-five thousand.

Santa Clara Valley extends the whole length of the county, from its northern to its southern boundary. This valley is naturally divided into a northern and a southern division, by the opposite mountain ranges approaching each other about midway its length, and narrowing it down to a breadth of about three miles. The northern part of the valley at San Jose and northward is about sixteen miles in breadth; this division being somewhat the largest. The narrow, intermediate place, is the most elevated, from whence the waters divide, running in opposite directions. The streams of the northern division rise in the mountains on each side of the valley, and make their way with rapid course into the level country, through which they run northward into San Francisco Bay. The streams of the southern division run southward into the Pajaro River, which empties into the Bay of Monterey. There are no large rivers within the limits of this county; and although some of the larger creeks carry considerable volumes of water during the rainy season, yet they either become dry or reduced to quite small streams during the Summer and Autumn months. The incline of the land in the most level parts of the valley, is equal to about ten feet per mile, which is sufficient for good drainage; and there are not many stagnant pools of water left to evaporate during the dry season; and whatever of malarial influences may here generate, are so completely dispersed by the constantly recurring sea breeze, as to prevent the development of any malarious disease, from which there is entire exemption throughout the valley.

The water used for domestic purposes, except in the towns of San Jose and Santa Clara, is mostly obtained by digging or boring—usually by the latter method. The surface water is of uncertain quality, but the auger is made to penetrate to the depth of from thirty-five to fifty feet, and piping used, and pumps and windmills to raise to the required height; and water obtained in this manner is pure and wholesome.

Around the head of the bay, and extending back to and including the city of San Jose, there are several hundreds of artesian wells in use, the water of which is pure and soft; and also in the southern end of the valley artesian well boring has proved successful.

The general elevation of the western range of mountains is estimated at about two thousand feet, and the highest peaks—Mts. Chonal and Bache, at 3,530 and 3,430 feet, respectively, and Mt. Hamilton, of the eastern range, the contemplated site of the Lick Observatory, is 4,448 feet in height. The higher points of the mountains are, every Winter, more or less covered with snow, and occasionally the fleecy coating, on both sides of the valley, extends for a few days down to within four or five miles of the bottom land, but not enough ever falls in the valley itself to whiten the ground.

The mountains which range along the coast, shut out, in a measure, the cold northwest trade winds, and the Santa Cruz range forms a barrier to the ocean fogs; a sufficiency, however, of the ocean breeze forces its way up the southern arm of the San Francisco Bay to modify the heat of the Summer months, thus producing a mild and equable climate throughout the year. The trade wind, which, immediately upon the coast, is so fresh and cold and moist, in its passage up the bay, by intermixture with the atmosphere of the surrounding country, is somewhat raised in temperature, and deprived of its superabundant moisture, and becomes soft and balmy; in fact, an atmosphere which is so near perfect, for purposes of human respiration and

animal comfort, that no change could but rarely be desired.

The number of days in which the temperature is in excess of a comfortable degree, is very small, and although the fore part of the day may sometimes become too warm, yet it is very seldom that the sea breeze does not come at midday, bringing with it complete relief; although in the southern end of the valley, the temperature reaches a somewhat higher degree than in the northern. The highest range of the thermometer at San Jose is about one hundred degrees in the shade, and then for one period of only a few days at longest during the season.

The following table exhibits a record of the mean monthly temperature at San Jose, for one year:

Months.	Deg. 6 A. M.	Deg. 12:30 P. M.	Deg. 6 P. M.
June	52.40	77.03	60.40
July	55.32	81.71	64.84
August	53.16	83.74	64.87
September	55.63	79.17	65.10
October	46.48	74.68	63.06
November	34.40	59.77	52.30
December	36.61	53.68	45.26
January	36.68	54.42	48.00
February	38.93	58.32	48.61
March	39.99	62.58	51.29
April	50.37	69.23	54.00
May	48.26	69.90	54.97

The average humidity of the climate of this valley is much less than immediately upon the sea coast. The following table compares the rainfall of San Jose and San Francisco for the last six years:

SAN JOSE.		SAN FRANCISCO.	
Season.	Inches.	Season.	Inches.
1873–4	13.23	1873–4	22.69
1874–5	8.83	1874–5	18.00
1875–6	20.50	1875–6	25.39
1876–7	5.47	1876–7	9.84
1877–8	19.53	1877–8	34.43
1878–9	8.30	1878–9	21.00
Total	75.86	Total	131.35

Which shows the average rainfall at San Francisco to have been about seventy-three per cent. greater than at

San Jose; and much of the excess falls in light showers, which do not reach Santa Clara Valley; and the number of cloudy and rainy days in the valley is comparatively small.

This beautiful valley, if not equal as a sanitarium to some other localities in this State more famed for such purposes, yet possesses a climate so equable and salubrious that delicate people, those of a consumptive or rheumatic diathesis, or those anæmic persons who are lacking in natural life-vigor to sustain themselves in a more rigorous or more debilitating climate, find here a climatic condition well adapted to their weakened powers, with the pleasant surroundings of beautiful natural scenery, and cultivated and ornamental landscape, together with good society and other social privileges, which tend to keep up a cheerful state of the mind and render life attractive.

In the mountains and foothills, on either side of the valley, Santa Clara County has a climate which is probably adapted to as great a proportion of those cases for which special climatic conditions are sought, as that of any other locality. That part of these mountains most visited as yet by health seekers, is where the road from San Jose to Santa Cruz passes through what is called the warm belt. The warm belt is a region which commences on the east slope of the mountains, at an elevation of about four hundred feet, and extends towards the summit to an elevation of about twelve hundred feet above sea level. The advantages of this location over the valley consist principally in its elevation above the fogs which occasionally prevail in the valley, and generally a still less degree of humidity, and especially during the night, and a more equable temperature during the twenty-four hours of each day.

The Pacific Congress Springs, at Saratoga, about twelve miles from San Jose, possess alkaline and chalybeate properties, and have proved useful as a tonic and in rheumatic affections. These springs are provided with commodious

and well furnished hotel buildings, and have a pleasant location and an excellent climate.

The water of the Pacific Seltzer Springs, located near the preceding contains chlorides of magnesia and potassa and carbonates of magnesia and soda, and is used in cases of indigestion and hepatic and nephritic affections. The Gilroy Hot Mineral Springs, located in the eastern range of hills, about twelve miles from Gilroy, for some years past has been the principal watering place in this county. The location is in the midst of grand and beautiful scenery, and has a pleasant, sunny climate. These springs have a good hotel with numerous cottages and ample bathing accommodations. The waters, which are abundant and sparkling, have a temperature of 112 degrees, and are strongly impregnated with iron, and also contain sulphur, soda, magnesia and arsenic. Their use has proved efficacious in rheumatic, neuralgic, nephritic, dyspeptic and cutaneous affections, and as a tonic in general debility.

The City of San Jose is situated in the midst of the northern division of the Santa Clara Valley, eight miles from the head of San Francisco Bay, southeasterly, and is elevated about seventy-five feet above tide water. The two principal streams of this division of the valley, viz: Coyote Creek and Guadalupe River, at San Jose, are only a little over one and a half miles part, and the city occupies the space between these streams, and extends about a half mile to the westward of the Guadalupe. The incorporated limits embrace a superficial area of about three thousand acres, and contain a population, variously estimated, at from sixteen to eighteen thousand.

The water for the use of the city is mostly supplied by the City Water Company, and is brought from the canyon of Los Gatos Creek in the foothills of the Santa Cruz Mountains, in iron pipes, and is of good quality. About one-fourth of the citizens, however, use the water of the deep bored wells, and a few are supplied with artesian water.

In regard to matters of sewerage, San Jose is quite de-

ficient, the system in use having been constructed several years ago, as only a temporary arrangement, which answered its purposes very well at the time, but the great increase in population since, and the spreading limits of the built up portions of the town, have altogether outgrown the system. The main sewer empties its contents into an open ditch within the city limits, in less than a half mile and directly to the windward of a built up district; the odor which is thrown back on the breeze from this source is sometimes quite noisome; considerable portions of the northern and eastern parts of the city have no means of drainage, except gutters or shallow open ditches, and a degree of dampness and moisture at times prevail, which render it unpleasant and unwholesome. It is within these badly drained districts that most of the cases of typhoid fever and diphtheria have occurred during the past year, which should be sufficient warning to the town authorities and citizens to prompt action in this matter. The surface of the land on which the city is built is slightly undulating; the fall towards the bay is sufficient, and there will be no very deep cutting necessary, or rocky or otherwise hard surface to encounter—all of which circumstances are favorable; but the great length of the main sewer or outlet, if extended to a proper terminus, viz.: to some slough of the bay, where there is a daily ebb and flow of the tide, would cost a comparatively large sum; and there is a disposition to study out and adopt some other feasible but less expensive plan for disposing of the sewerage.

Recently several gentlemen, owning contiguous tracts of land from one mile northward of the city limits to the bay, through which a feasible route can be located, have proposed in a written petition to the Mayor and Common Council, that if the city will construct a main sewer to the south line of the lands of the petitioner whose premises are situated nearest the city, that from that point on through, these petitioners will give the right of way for an open ditch, for the privilege of using the sewage when desirable, for purposes of irrigation in cultivating fruits and vegetables.

Water-carried sewage irrigation is a subject of which but little is known in the United States, and such a proposition seems fraught with impending evil to those who have not either in other countries observed it in successful operation, or read of experiences of older communities in Asia and Europe, in regard to it. An English work, compiled by two civil engineers, Henry Robinson and C. J. Melliss, and published in 1877, shows that the application of sewage to land for agricultural purposes, has been on trial in that country for over a quarter of a century. This work gives a tabular statement, showing the management and working of the system, collected from thirty-two of the principal places where it has been adopted, besides much other useful information upon the subject in detail. And although in that country, in most instances, it has not proved profitable as an investment, yet this account does not show that it is not the least expensive method which could be adopted by those towns to get rid of their sewage, and it does prove that under favorable circumstances and properly conducted, sewage irrigation may be harmless of producing insanitary conditions, either upon the farms where the sewage is used or in the surrounding neighborhoods.

Sewage irrigation in Spain, northern Italy and British India, on a large scale, has been highly useful; and the history of the system in different parts of the old world shows that the favorable conditions for success are a dry and warm climate, sandy or gravelly soil, and a large area of land in proportion to the amount of sewage to be disposed of. The climate of this State is quite suitable for this system, and San Jose, by arrangement with the land proprietors, will possess the other two conditions; there being but one unfavorable circumstance now apparent, viz.: that the drainage must be in the direction which makes it necessary that the irrigated tract shall be to the windward of the town.

The greater number of the English cities which have resorted to irrigation, have acquired the ownership of the lands to which the sewage has been applied, which has

enabled them to control the management; but in some instances, where the sewage has been sold, delivered through conduits, to neighboring proprietors, the process has been conducted more with a view to pecuniary profits than from a sanitary standpoint, and the situation has been allowed to degenerate into an insanitary nuisance.

The odor given off from fresh excrement, although not agreeable to the olfactories, is much less dangerous to human life than the effluvium which arises from dormant accumulations of the same substance. And I will here suggest that, in preparing to carry out this system, the pipes and sewers should be laid with reference to as rapid transit of the debris and excrement, from the cesspools and privies of the city to the depots of distribution as possible, and thence the sewage should be spread over the land without delay; and that guarantees should be exacted of those to whom it is to be delivered, that it shall not be allowed to accumulate in pools and remain stagnant, to deposit sediment and putrefy.

The following statement, made out from the Oak Hill Cemetery records, commencing with March 31st, 1879, shows pretty nearly the causes of mortality at San Jose during that period:

DISEASES.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	March	TOTALS.
Phthisis	5	5	7	7	3	3	3	2	3	8	5	2	53
Pleurisy & Pneumonia	3	1	5	...	...	...	2	3	3	2	...	1	20
Diphtheria	...	...	1	4	5	...	1	1	...	...	...	...	12
Typhoid Fever	...	...	...	1	2	1	...	1	3	1	...	...	10
Cholera Infantum	1	1	2	1	2	...	...	...	...	1	...	...	8
All other causes	16	8	8	17	14	8	14	12	21	13	6	11	148
TOTALS	25	15	23	30	26	12	20	19	30	25	11	14	250
Under 5 years of age	5	5	9	10	5	...	3	6	4	6	1	1	55
Died within city limits	9	11	16	17	20	8	13	11	19	23	8	9	164

The mortality from phthisis was much increased by the large number of people who were sojourning, or had settled at San Jose from the Eastern States, who were already affected with or predisposed to the disease before leaving

their former homes. The number of children under five years of age is exclusive of the cases of stillborn and premature births, of which there were 13. The deaths during the year from causes not already mentioned were, according to the records, as follows: Asthma, 1; apoplexy, 3; alcoholism, 4; accidents, 11; bronchitis, 5; biliary calculus, 1; convulsions, 3; croup, 1; chronic diarrhœa, 1; congestion of the brain, 2; cancer, 3; cancer of stomach, 4; cholic, 2; debility, 1; dysentery, 1; dropsy, 3; enteritis, 8; encephalitis, 1; epilepsy, 1; exposure, 1; fever, 1; gastric ulcer, 1; gastric inflammation, 2; hydrocephalus, 2; heart diseases, 17; hemorrhage, 1; hemorrhage umbilicus, 1; hemorrhage lungs, 2; hemorrhage bowels, 1; intussusceptio, 1; imperforate bowels, 1; inanition, 3; kidney diseases, 3; liver diseases, 5; lockjaw, 1; marasmus, 2; meningitis, 1; murdered, 1; natural causes, 1; necrosis of femur, 1; old age, 1; opium, 1; paralysis, 7; remittent fever, 1; senile gangrene, 1; suicide, 4; scarlatina, 1; starvation, 1; spasms, 1; typhoid pneumonia, 3; thrush, 1; unknown, 4; whooping cough, 4. Of the 250 interments the records show that but 164 were of persons who died within the corporate limits of the city; the others having been brought in mostly from the surrounding country, but twelve, however, of the number were brought from more distant places for interment here. Persons who are so situated as to best understand this matter, concur in estimating that about three-fourths of all the people who die at San Jose are interred at this cemetery, which would give 219 as the figure representing approximately the total mortality for the year, or about thirteen for each thousand of the population.

The Town of Santa Clara is located three miles north and west of San Jose, and has a population, within the city limits, of three thousand. The sanitary conditions are similar to those of San Jose. Its water supply is from the same sources; and since the construction recently of a substantial and capacious main sewer, one and one-fourth miles in length, running centrally through the most com-

pactly built district, to a creek in the direction of the bay, this is a better drained town than its larger neighbor.

The Town of Gilroy, situated in the southern division of Santa Clara Valley, has about eighteen hundred inhabitants. It is located on level land between the Llagas and Uvas Creeks, being within about five miles of the Pajaro River, and near the foothills of the Santa Cruz Mountains. The water used in the city for domestic purposes is obtained principally from wells bored to the depth of from thirty-six to forty feet, and is of good quality. Water upon being reached at that depth rises spontaneously towards the surface from eight to sixteen feet, and is thence elevated to the required height with pumps.

The incline of the land is insufficient for good natural drainage, and no sewerage whatever has been introduced. The debris and excrement deposited in cesspools is never removed, except by the voluntary efforts of parties concerned, the town authorities paying no attention to such matters. Yet Gilroy, by its natural situation, has two highly favoring circumstances for the preservation of health. The first being that it receives a fair share of the trade winds as they course thorough the valley, and the other in the peculiar geological formation upon which it is located, the top soil being a sandy loam with a gravelly subsoil, which gives it unlimited absorptive qualities; and thus favored the town has remained remarkably healthy and especially free from endemic diseases. Diphtheria has never troubled the place, and typhoid fever has only visited it occasionally with sporadic cases. Pertussis is the only disease which has been endemic in the town at any time during the past year.

The Town of Mayfield, near the northern line of the county on the west side of San Francisco Bay, was, during the year 1878, scourged with an epidemic of diphtheria of a malignant and unmanageable character. For some months prior to January, the disease was manifest there in a few cases, and during the heavy rains of that month the town was flooded, after which the number of cases and virulence

of the disease increased, and the following Summer assumed the proportions of an epidemic, and although abating in the Fall, it still had continued to linger as late as the 26th of March last, there being two cases in the place at that date. Dr. C. A. Kirkpatrick has account of forty-one cases during the year 1878, nineteen of which proved fatal. I was led by the statements of Dr. A. Milliken, and some of the citizens of Mayfield, to attribute the visitation almost entirely to the overflow and consequent flooding of cess-pools, and contamination of the wells by the impure water from the surface, and the dampness of and evaporation from the undrained soil. But Dr. Kirkpatrick, while admitting that the flood is chargeable with the increase in the number of cases, and the malignant type which the disease afterwards assumed, yet thinks there was an original and unaccounted for cause existing before the overflow, and cites as evidence the fact of several cases before that period, and that he attended a family up in the mountains back of Mayfield, during the time in which four persons in a household of five had the disease, although there were none of the conditions present to which the disease was attributed at Mayfield, nor had any member of the family been at that place for a period of two months previous to their sickness.

The country to the westward of Mayfield is higher than the location on which the town is situated, and roads have been constructed, and farming improvements made, without due regard to the water outlet during the rainy season, and until this shall have been remedied, the place will continue to be flooded at every unusually heavy rainfall. A capacious ditch, so located as to receive the water from the adjacent back country before it reaches the town, and conduct it to a slough of the bay, is the principal requirement, and with smaller ditches and gutters leading into it would give sufficient drainage. But the acquiring the right of way, and excavating the main ditch, appears to be a work of considerable magnitude for Mayfield, and last Fall surveyors were employed by the Supervisors of Santa Clara

County to make a survey, and they reported quite sufficient fall for the purpose, and that it would insure protection from overflow, but nothing has been done since.

SAN DIEGO AS A HEALTH RESORT. BY C. M. FENN, M. D.

The chief climatic desiderata with regard to the invalid, are equability and stability. The first feature, defined climatologically, implies a thermal standard of about 60°, which experience has proved to be best adapted for either the preservation of health, or for its restoration when impaired. Together with this there should be equability of moisture or humidity. The winds should be constant or not too variable. And as the character of the soil plays such an important part in the salubrity of any locality, the ground must be capable of rapidly absorbing dampness, and drying quickly after rain. Some portions of Massachusetts, that hot-bed of consumption, are said to be practically exempt from phthisis, owing to this property of the soil. Freedom from malaria and from the usual epidemics are also essential requisites. As small capitalists proportionately suffer most in times of panic, so do invalids run a greater risk in the presence of epidemics. The second feature, stability, is of even paramount importance. A climate which fulfills all the requirements enumerated for a brief season, for Winter or Summer only, is practically useless to a large proportion of the infirm. The process of acclimation is slower when the system is impaired, though none the less unavoidable. Hence, a chronic malady requires a chronic climate! Let us apply these laws to one of many notable localities in the State.

The City of San Diego, situated in latitude 32° 41′, longitude 117° 12′, is the extreme southwestern outpost of the United States. To the north lies a State, covering nearly 9° of latitude and longitude—a very mother of climates—the waves of the Pacific, that great equalizer of

temperature, lave its western shore; the desert to the eastward is separated from us by more than sixty miles of valleys and pine-capped mountains, while to the southward a strip of Mexican territory calmly awaits American destiny. Having such a geographical position, such an environment, is it any marvel that San Diego's isothermal line has not yet been found on the Atlantic seaboard, or that its climate is "sui generis," if not incomparable? With an altitude of sixty feet above the level of the sea, and a landscape gradually descending toward the bay, its drainage is natural and sufficient. A soil of decomposed or disintegrated marl (sand and clay), with comparatively little irrigation, yields all the vegetation desirable in a health resort, since "luxuriant vegetation, though agreeable to the senses, may merely mean high temperature combined with moisture—conditions not favorable for pulmonary affections." Endemics and epidemics which depopulate other portions of the globe, do not tarry here. Malaria, zymotic diseases, and the peculiar vicissitudes of certain seasons, from which even the sojourner at Mentone or Florida must flee as from the plague, are here unknown. Once acclimated, the confirmed invalid may here indefinitely prolong his life, while the robust may luxuriate in Summer skies until life becomes monotonous. That this is no fancy sketch, a few meteorological facts gathered from the records of the Signal Bureau will sufficiently prove.

For the six years ending with 1878, a period selected solely for the correctness of its data, the annual mean temperature has been—

60°2'	1873.	60°8'	1876.
59°4'	1874.	62°1'	1877.
61°6'	1875.	60°3'	1878.

Daily extremes at different seasons: Winter, 25°; Fall, 29°; Summer, 16°; Spring, 26°. During 1876, the data of which I have been permitted to compute, the annual mean variation between day and night was 13°1'.

The table comprising the twelve months of 1875, strikingly exhibits the constancy of the winds in this locality; a

northwest breeze prevailing for seven months and a west wind during the Spring and Summer.

In this connection it is proper to remark that as the heat of our Summer days is never oppressive, so are the nights cool and refreshing. At about 2 P. M. the maximum of temperature is reached, the sea breeze meanwhile and for apparent reasons having attained its greatest velocity. The result is that one balances the other so that neither becomes excessive. At 9 P. M. the order is reversed, the earth radiating its acquired heat, and giving rise to a land breeze which takes the place of that which prevailed during the day. For the same period the average readings of the hygrometer give us the following table of mean relative humidity:

72.9	1873.	72.5	1876.
76.	1874.	70.8	1877.
75.1	1875.	72.9	1878.

The average barometric readings for the time stated were—

30.011	1873.	30.017	1876.
30.022	1874.	29.999	1877.
30.033	1875.	30.001	1878.

In the immediate vicinity of the city the average annual rainfall is ten inches, the quantity largely increasing with the distance from the coast. For a period of thirteen years this amount has been distributed through the seasons named below, the figures expressing in inches the mean of rainfall; Spring, 2.02; Summer, 0.45; Autumn, 1.48; Winter, 5.21. During six years the average mean of rainy days is shown to be 43.

As a fitting finale to the meteorological features of this remarkable climate, attention is called to the following summary of the local observations for the entire year of 1875. It will be observed that it is the center of the cycle which we have been considering. The small number of cloudy days, 44, is worthy of special note. Among the general remarks of the observer, omitted from this table, he refers to the cloudiness of April and the high temperature of August as "unusual."

DATE.	BAROMETER. Mean of local observation	Mean of telegraphic obs. A. M. observation	P. M. observation	Night observation	Range. Highest	Lowest	Difference	THERMOMETER. Mean of local observation	Mean of telegraphic obs. A. M. observation	P. M. observation	Night observation	Range. Maximum	Minimum	Difference	WIND. Prevailing direction	Number of miles. Noon to 6 P. M.	6 P. M. to midnight	Midnight to 6 A. M.	6 A. M. to noon	Max. velocity during month	Total	Am't Rain & melted Snow. Amount in inches	Number of days on which rain or snow fell	Hot and cold days
1875.																								
January	30.09	30.09	30.08	30.10	30.29	29.56	.633	53.1	49.2	58.6	52.6	68	42	26	N E	1356	723	686	861	23	3626	2.38	8	1
February	30.10	30.10	30.07	30.10	30.26	29.79	.572	54.1	49.9	59.8	54.1	70	44	26	N W	1374	520	578	658	23	3130	.37	3	4
March	30.10	30.10	30.09	30.10	30.36	29.81	.557	55.0	49.0	61.4	54.5	71	39	32	N W	1338	737	827	967	26	4369	.45	3	4
April	30.05	30.05	30.04	30.05	30.38	29.89	.492	58.0	52.5	63.7	57.3	77	39	38	W	1806	749	680	1094	26	4329	.12	2	3
May	29.97	29.96	29.97	29.98	30.09	29.87	.217	62.9	58.5	67.6	61.6	82	50	32	W	1677	707	524	1070	20	3978	.20	3	5
June	30.00	30.00	30.00	30.00	30.13	29.89	.246	64.9	60.7	69.7	63.3	77	53	24	N W	1829	787	575	1228	16	4419	.02	1	1
July	29.99	29.99	29.98	29.98	30.09	29.90	.183	68.3	65.3	72.6	66.9	79	62	17	W	1985	824	502	1217	16	4528	.00	0	9
August	29.94	29.94	29.93	29.94	30.07	29.85	.223	71.3	67.9	75.6	70.2	83	64	19	W	1719	669	369	1110	16	3867	.21	1	1
September	29.97	29.97	29.96	29.97	30.13	29.84	.279	67.6	64.9	71.6	66.6	88	59	29	W	1835	577	409	943	20	3764	.39	2	6
October	29.99	29.98	29.96	29.99	30.17	29.79	.377	67.3	61.8	73.2	66.5	88	53	35	N W	1519	461	379	836	16	3195	.00	0	2
November	30.08	30.07	30.06	30.09	30.23	29.75	.279	60.2	56.3	65.4	59.3	78	50	38	N W	1766	695	713	859	20	4033	2.25	7	3
December	30.09	30.09	30.06	30.10	30.36	29.82	.534	56.6	51.7	63.2	55.7	75	38	37	N W	1392	771	766	960	32	4389	.41	3	5
Annual Means.	30.03	30.03	30.02	30.04	30.21	29.84	.374	61.6	57.3	66.9	60.7	78	49.4	29	N W	1675	685	584	984	21	3969	6.80	33	44

Leaving the domain of figures, a few general facts may not be out of place.

Besides a great variety of flowers and grasses, some indigenous, others imported by the priests more than one hundred years ago, many valuable medicinal plants are found here. All the ornamental shrubs and flowers susceptible of cultivation anywhere, take kindly to this genial soil. The Australian gum-tree (eucalyptus globulus), and the Mexican pepper-tree (schinus molle), vie with each other in adorning the several thoroughfares and affording a grateful shade. The orange, lemon, olive, and semi-tropical plants generally, flourish here as if in their native soil.

The city is well supplied with pure mountain water, conveyed in pipes from the river. A hotel, second to none south of the Pacific metropolis, with others of lesser note, offers to the sojourner all the comforts of a home at reasonable rates. The population, derived chiefly from the Eastern and Middle States, is noted for its intelligence and hospitality. The invalid visitor, therefore, associated with those of his "own tribe and speech," will not be under the necessity of acquiring a foreign language while in the pursuit of health.

There are duties, however, which the patient owes to himself and to any climate which he may select for trial, a few of which I venture to suggest. If attacked by any of the maladies which require change of residence, and he is able to go abroad for climate, let him not "wait upon the order of his going." To look upon such localities as dernier, rather than health resorts, is a custom founded in error and fraught with danger. If a paterfamilias, he should bring his lares and penates with him, that there may be no "sighing for the fleshpots of Egypt." If possible, no business should be left unfinished to harass his mind and retard recovery. In the absence of his family physician, let him at once place himself in communication with some one of the medical men of the locality, who will induct him into the peculiarities of his new home. To

proceed without such counsel would be like speculating in real estate without consulting the records or an agent. And having found a congenial locality, he must make it an abiding place for years if not for life; at least until his system has been completely regenerated. How many physicians in this State have seen their Eastern patients, while on the high road to health, return to their old haunts on business or pleasure, only to be stricken down irrevocably. They may betimes succeed in reaching California again, but the fiat has gone forth and death is at the door! Many have passed away who might to-day have been in the enjoyment of that health restored, of which we have multitudes of *living* examples!

TOPOGRAPHY, ETC., OF LAKE COUNTY. BY J. H. CRUMPTON, M. D.

DR. H. NEAL, Chairman of Committee on Medical Topography, etc., of State Medical Society:

DEAR DOCTOR: Your reminder of my being a member of your committee is received. Owing to other claims on me, I will not be able to do justice to the importance of the subject. I will confine my effort to a brief description of a very interesting section of country, which seems to be almost unknown to many old Californians. The most I hope to accomplish is to furnish a few items of sufficient interest to be absorbed into your own report, instead of making this a separate paper.

LAKE COUNTY occupies an immense basin in the Coast Range of mountains—has an area of about 1,450 square miles, most of which is mountains, with some fine valleys interspersed. The county seat, Lakeport, is about one hundred miles north of San Francisco. Before the construction of several fine roads across its mountain barriers to this section, there was complete isolation from the outside world, a condition not distasteful to many early settlers, who, for reasons satisfactory to themselves, desired removal

beyond the confines of civilization. But all this has changed, as at Calistoga, Cloverdale, and Williams, we reach railroads by daily stage lines running into this county. Owing to similarity of scenery, this is not inaptly called the Switzerland of America, which, with its fine climate, (Summer temperature, 75°–80°; Winter, 40°–46°) the great number and variety of its mineral springs, and the abundance of fish and game, is making this a popular resort for health and pleasure seekers. The county is named from the lake within its border. Clear Lake is about thirty miles long, and about ten miles wide opposite Lakeport; area about eighty-two square miles—having several steamboats plying between different points on its border. Among the smaller, are the Blue Lakes, "*three sparkling gems linked together*," making with their mountain bordering, a fine view. These lakes, as well as the mountain streams flowing into them, abound with fish. It is hard to answer the query, "What are the prevailing diseases?" 'Tis true we doctors have work to do, and the graveyards fill up. We have a few cases of Autumnal fever, following *dry* Winters—of typhoid fever and pneumonia; but the most of our work is among children with ailments resulting from cold or dietetic imprudence, calls incident to parturition, surgical, and old chronic cases coming in from abroad, to try the virtue of some one of the medicinal springs. Some years since, our faithful Secretary of State Board of Health sent out to the profession generally, a circular containing the following among other queries, which I beg leave to append with my answers thereto:

Sixth—What, according to your observation, has been the effect of your climate upon the early stage of phthisis? Answer.—Remarkably good, owing to the sheltered position, shielded from the raw, damp coast wind, with few sudden atmospheric changes, an almost entire absence of fog.

Seventh—What have been its influence upon the second and third stage of that disease? Answer.—Many cases are greatly improved, life materially prolonged; a few appar-

ently, permanently relieved. One important element of improvement being the restoration of the digestive powers.

Eighth—What is the most favorable locality for consumptives in your vicinity, and the most suitable season for residence there? Answer.—On the sunny slopes near the lake during Winter, and to climb among the pines during Summer, where there is an abundance of pure, cold spring water, fish and game.

Clear Lake is at an elevation of upwards of 1,500 feet above tide water, surrounded by fine valleys, extending back to mountains which ascend in some instances to near the perpetual snow line. This is the asthmatic's paradise!

Referring to the above, Dr. Hatch says: "This is the region of country which it has been my custom to recommend to the invalid in the early period of phthisis, or even at a slightly more advanced stage, when the strength of the patient will endure the fatigue incident to camp life and exercise, both of which I regard as indispensable. The whole range of country abounds in eligible spots for camping among the pines in the vicinity, of game and easily accessible trout streams. Even females accustomed to the delicacies and comforts of city life, have not unfrequently laid aside the habits of fashionable formalities, and cheerfully resigned themselves to the quiet duties of the camp, enjoying the wild beauties of the hills and pleasant amusements for which nature has so abundantly provided. So much for the Summer and Autumn months; yet I am convinced that many unable to bear the expense necessary for a removal to the southern coast during the Winter, will find the climate at that season agreeable and healthful. The temperature near Clear Lake is never cold enough to be objectionable; the atmosphere is pure and bracing; while the rains, while they may interfere with the solid enjoyments of the camp, are never so continuous as to render active out-door exercise, for the greater portion of the season, impracticable.

REPORT ON INDIGENOUS BOTANY.*

BY W. P. GIBBONS, M. D., OF ALAMEDA.

In the United States Land Office Report of 1868, the State of California is computed to contain 188,981 square miles, or about 121,000,000 of acres. These are divided into 40,000,000 acres of arable land; 35,000,000 of grazing; 10,000,000 of arid surface, of which 9,000,000 are susceptible of cultivation; 5,000,000 of tule, or overflowed, which can be reclaimed; 5,000,000 covered with lakes, rivers, bays, and other bodies of water; and 26,000,000 of rugged and mountain land, heavily covered with timber. More recent and extensive surveys, and more exact estimates from the United States Surveyor General's Office in San Francisco, have determined that the area of the State is 157,801 square miles, or in round numbers, 20,000,000 of acres less than the foregoing compilation. I believe, from best authorities which are accessible, those who have traveled over the Sierras and its foothills, in which I include my own excursions along one-half of the range, that there are less than 12,000,000 acres of accessible forest growth in the State. This question, however, I do not propose at present to discuss.

The surface geology of the State is determined by two ranges of mountains. The Western or Coast Range Moun-

*Parts of this paper were written in 1870 and 1872, and portions published in the "Overland Monthly" and in the "Pacific Medical and Surgical Journal." It is reproduced here, but not in full, as a preface to a work on the "Medical Botany of the Pacific Coast," which the author has been working at for several years during respites from professional duties, and which he hopes to have in some tangible form, at an early day.

tains commence in the northern part of the State, and extend southeast along the coast about 550 miles; thence curve easterly and join the Sierra Nevadas, having a varying width from forty to sixty miles. At the Bay of San Pablo, they divide into three ranges, one extending along the ocean line, one along the eastern side of San Francisco Bay, and the third having Mt. Diablo as an eastern limit, with its range parallel to the others. Thus is recognized the first, second and third Coast Range Mountains. Except where separated by San Francisco Bay and San Jose Valley for about seventy-five miles, the area between these prominent ranges is filled in by small valleys and hills from two hundred to eight hundred feet high, and being within the line of daily fog precipitation, it forms one of the most fertile agricultural sections in the State.

The Sierras enter at the north of the State border, and with the Coast Range, form a mass of mountains two hundred miles wide from the ocean to the western edge of the State, and extend one hundred and fifty miles south, before diverging to form the northern boundary of Sacramento Valley. Thence they trend southeast for nearly three hundred miles, with a width from sixty to seventy miles, and turn westerly to unite with the Coast Range Mountains, and form the southern extremity of Tulare Valley.

As thus located, the two ranges of mountains inclose a basin or valley 420 miles long, with an average of about fifty miles wide, containing over 21,000 square miles, or near 13,500,000 of acres, all of which is nearly level with tide water, and is essentially without trees. True, there are sparse growths of quercus agrifolia, quercus lobata and quercus sonomensis on the uplands, and of cottonwood, buckeye and willows, along the course of streams and on swamp lands, but the aggregate growth is too insignificant to be spoken of as forests.

Of the 5,000,000 of tule and overflowed land, and of 9,000,000 of arid surface, which can be reclaimed by irrigation, three-fourths or 10,500,000 are contained within the great valley of which we have been speaking. From

the early settlement of the State this valley has been known as a malarial region. The annual rainfall within its boundaries, is generally much less than that on the foothills or along the coast range. Portions of it receive sufficient to perfect growing crops every year; but through its entire area the average does not exceed four or six inches of water. To overcome this uncertainty, a system of irrigation has been in partial operation for some years, with highly satisfactory results. The soil has proved to be marvelously productive, and farmers have congratulated themselves on being able to overcome the one great difficulty to successful agricultural labor throughout this basin. Unfortunately, however, with the irrigation of the soil, there has been developed new localities of malarial fever, and the conclusion seems to be inevitable, that one is a sequence of the other.* Observation has established as facts, that excess of water in soil produce currents which either carry off the poison or dilute it to the extent of rendering it innoxious; and that a lack of water abstracts a necessary factor to vegetable decomposition, and prevents the development of the poison germs. It is between these extremes that the forces operate which develop paludal fevers. There must be present, however, a continued temperature above 60° to establish the condition necessary to produce vegetable decomposition and miasm. All these conditions are to be found throughout the great valley, and in some other parts of California. For a distance of over three hundred miles long and fifty miles wide there are neither trees nor mountains to divert or retard the aerial currents which are developed from causes existing within the basin. There is not a living stream which enters a valley from the western slope. The fitful currents of Winter storms erode hillsides and gulches, then disappear in debris which once formed the flanks of mountains, are now lost as geological records.

*It is stated that after several years of irrigation the tendency to malarial disease abates. The report, however, is not sufficiently definite to be stated as a fact.

From the eastern border there are twelve or fourteen rivers which head in the Sierras and debouch in the Sacramento and San Joaquin Rivers. These streams head, one in the mountains of the north, the other in those of the south extremity of the valley, and find a common outlet to the ocean through the Bays of San Francisco, San Pablo and Suisun, about the thirty-eighth parallel. During extraordinary Winter rains, large portions of the valley are subject to overflow; at Sacramento the river rises twenty-three feet above low water mark, and during the prevalence of the dry season, nearly all the mountain tributaries dwarf into such shallow and sluggish streams as to leave barely sufficient water for navigable purposes between the two leading cities of the State. Girded by the Coast Range on the west, and by the Sierras on the east, the little moisture which the valley contains is evaporated about the middle of April, and the temperature increases until the daily breathing heat is measured from 80°, 90°, 100°, and frequently in some localities from 140° Fahrenheit. There is no escape from this oppressive temperature, except along the river courses. Sometimes the air rests for days together in stifling repose; then it moves and sweeps like a sirocco over the country, searing the verdure of every garden-spot and orchard. Again, sand-storms arise, and whirl over untold miles of plains, like an ancient prince of evil, who traveled up and down, to and fro, upon the earth, seeking whom he might devour. Thus the ground becomes perfectly desiccated, except in swamp lands, so that vegetable decomposition is arrested. When water for irrigation is brought in upon this soil, the condition becomes complete whereby active vegetable fermentation and the liberation of miasms are accomplished. It thus becomes a question of interest, whether anything can be done to relieve from malaria an area of land which is capable of sustaining a population of 3,000,000 human beings.

Brief reference will now be made to some of the prominent climatal phenomena which are developed along the ocean line. The westerly Summer winds herald their com-

ing by banks of fleecy vapor, which enter at the Golden Gate and other low points along the coast, and gradually invest hills and mountains on both sides of the bay to a height of several hundred feet. In places, radiant heat absorbs the vapor during a greater part of the day, but as a general rule the fog begins to appear along the second and third ranges about 3 or 4 P. M., and remains till after sunrise on the succeeding day. Yet there is not uniformity in the appearance of the fog cloud; days may intervene without its presence beyond a few miles of the coast line. It is owing to the vapor thus carried and condensed over cultivated land, that crops along the range of the westerly winds are perfected with much less rainfall than is necessary for them in the interior valleys. A significant fact, to be hereafter applied, may now be noted; the condensation of vapor into fog always first follows the course of those cañons and hillsides which are covered with shrubby vegetation or trees. I have now stated, as briefly as is compatible with a clear unnderstanding, the leading conditions which affect vegetation throughout most of the State, as regards the Coast Range Mountains and valleys. With every possible exposure from the level of tide water to an elevation of over 4,400 feet;* with a temperature among these mountains seldom falling below 32° nor rising above 80°, except where there are no trees; with great variety of soil, consequent on the great variety of minerals which enter into the composition of hills and mountains; with a sub-alpine region without its freezing temperature, where clouds and fogs may shut out the solar light for three-fourths of the entire year, we may reasonably look for a flora which combines all intermediate characteristics between sub-arctic *vegetation* development and the luxuriant growth of the tropics. To some extent, these expectations are realized. There are acclimated on the mountains and in our gardens no less than twelve species of arctic and sub-

*Mt. Hamilton, 4,448 feet, the site of the Lick Observatory, 37°21′; Mt. Diablo, 3,593 feet, 37°53′.

arctic trees, and more than double the number of Australian and sub-tropical species; among the conifers there are fourteen species; of oaks, there are ten; and sixteen genera of other native trees which go to make up our arboreal vegetation. Some of these are unsurpassed in size and beauty and in rapidity of growth. The pinus insignis will make a growth of eighteen inches in diameter two feet from the ground (and fifty feet high) in ten years, while the eucalyptus in the same time will attain twenty inches in diameter and seventy feet high. Many other of our pines are of equally rapid growth. These measurements only apply to their locality on or near cultivated soil, or in favorable mountain places. In addition to these there have already been naturalized in gardens and suburbs, eucalyptus and acacia and other foreign genera of trees; the luscious fig, the tree ferns of the south; the gorgeous palms, with their nutritive fruit; the nut-bearing trees, sub-tropical habitat; the golden orange and other aurantiaceæ, which form but a few of the contributions which have come within the State, showing how kindly nature will perpetuate among us her feasts of beauty and luxury, if man will but prepare the soil and cultivate the seed which comes almost unasked for within his reach.

With all these inducements to forest culture, the tendency of settlers is toward arboreal destruction. Thirty years ago, between Oakland and San Leandro, there were thirty square miles of noble forest, crowning the tops and the sides of the Coast Range Mountains. There were redwoods over thirty feet in diameter and three hundred feet high; oreodaphreas, six feet in diameter; arbutus, four feet in diameter and one hundred feet spread; oaks, four feet in diameter and fifty feet spread; mansanita, ten inches in diameter; alders, two feet in diameter and sixty feet high; and other smaller trees and numerous shrubs filling in unoccupied localities. Now, nothing is left but a few straggling species, which are fortunately without the range of the vandal's axe.

The foregoing remarks tend to show that the absence of

arboreal growth on some of the hills and valleys of the State is incidental, not necessary; that the means of reconstructing forests and enlarging their area are easy, and within the capability of every cultivator of the soil; that while there is a steady destruction of timber going on throughout the State, there must necessarily be a gradual increase of area over which malarial fevers will be developed.

What then can be done to diminish the liability to malarial disease in the great central valley of the State, and to limit its range outside of that valley? Apparently there is but one answer to this query: Arrest the useless destruction of existing forests and extend their growth over barren hills and valleys and swamp land. This is the practical idea: the leaves of trees absorb, precipitate and exhale vapor. I will not stop to give details of experiments made by scientific observers in relation to these points; results only will be given. Experiments lead to the conclusion that an oak tree will exhale during twenty-four hours what would be equal to one-quarter inch of water covering an area of ground as large as the spread of the tree. In sixty days of active growth it would render the atmosphere twelve inches of water, which is more than equivalent to the total rainfall of the season throughout the valley, making no allowance for surface evaporation. At the expiration of this time the tree must either die or go into a state of hybernation, unless some new source of supply is found. But the roots of the tree are not confined to the surface soil; they will penetrate it to a marvelous extent in search of water. I have seen branches of roots one-half inch in diameter thirty feet below the surface, and they doubtless went down thirty feet more. There is a vegetable instinct, so to speak, in the growth and movements of roots. They seem to smell out the direction to moisture, just as a mule detects the far off water, and they put for it through hard clay, stony soil, and small crevices in rocks, opening and enlarging their right of way with as much precision and certainty of result as a skillful engineer will reach his objective point on any quartz ledge hundreds of feet within a mountain's bank.

By thus penetrating the soil far below the line of surface moisture, they take up water and return it to the atmosphere by exhalation, from a depth which is beyond the reach of aerial absorption from the surface; and every day during the dry season the tree will add from one-eighth to one-quarter of available water to the air in the shape of vapor, which could not be received from any other source. Granting, then, the presence of a large forest, an equivalent of more than four or six inches of water per month would thus be brought up from fifty to a hundred feet below the surface of the ground, and distributed as vapor through the medium of foliage over a large surrounding area. Transpiration or exhalation of water takes place principally during the daytime; the rapidity of the process and quantity of water exhaled, depends largely upon the temperature and the dryness of the air. During the night this process may not only be entirely arrested but completely reversed; so that foliage will absorb vapor, and in numerous cases condense it. The more rapidly evaporation is carried on, the greater will be the reduction of temperature; while there is much humidity in the soil, the temperature of valleys remains comparatively low; but as soon as they are desiccated by Summer heat the thermometer will rise to its maximum; at the same time, within the shadow of trees, it will stand from 15° to 20° lower, on account of the atmosphere absorbing the water which is conveyed to the leaves through the roots. Thus it is that the roots of trees, in penetrating deeply into the earth, hold the same relation to the supply of ærial moisture and to the nutrition of trunks and leaves, as an ordinary well holds to the demand of water supply for domestic purposes; and we might as well argue that the constant abstraction of water by a pump desiccates the surface soil, as to claim that trees dry up the water of streams, and limit the growth of annual plants by abstracting the water from the earth which falls in the form of rain.

From these data it is manifest, that if a line of forest trees from three to five miles wide were planted along the

great valley, that the general temperature of the air would be reduced, and oppressive heat and the consequent incubation of malarial disease materially decreased.

There is another factor of great importance to be noted in this connection: the condensation of vapor from the foliage of trees. For about eight months of the year, commencing in the early part of May, fog-banks cover the hills and mountains almost daily. In valleys where radiant heat absorbs the vapor, the fog does not appear till after sundown. The height of these banks is variable, sometimes it does not exceed one or two hundred feet, but generally they cover the tops of the mountains, which are from eight hundred to two thousand feet high. This fog, on coming into contact with foliage, is partially condensed, and water so produced falls to the ground. The rapidity with which this process goes on is surprising; it varies in different trees. There will always be a wet spot under the spread of an eucalyptus after a damp or foggy night. This comes from precipitation. I have been under a redwood tree at noonday, where the outside temperature was about 80°, and the moss and grass upon the ground were loaded to their full capacity with drops of condensed vapor. When enveloped with the fog the leaves of this tree will condense vapor so rapidly that constant dropping of water beneath is equivalent to a light shower.

Recently on a botanical excursion with Dr. Kellogg, on Mt. Diablo, we were enveloped in a fog-cloud about 7 P. M., which continued for twelve hours. About 6 A. M. we were sideling up a hill, and I observed the ground beneath a mansanito bush to be quite wet; and in picking down there were two inches of soil so saturated as to represent one-third of an inch of water. Further on we tested the soil beneath a large oak, and moisture there represented a full inch of water. Our observations were sufficiently numerous to demonstrate that these were not exceptional phenomena. No spring nor running water was near nor above us; and the hillsides beyond the shadow of the foliage were dry and apparently desiccated.

Here, then, we see the power of forests as condensing agents. A third or a half inch of water supplied in condensation to the soil every day during the Summer season, would not only give sustenance to surrounding vegetation, but keep the whole atmosphere moist and cool. Now, it is easy to calculate the immense result which miles of forests will accomplish in this respect. In fact, the whole of our hillside vegetation, with the exception of large trees, is dependent for mature existence on this condensing property of their leaves; without it, they would germinate, evolve their foliage, then starve for want of moisture. An illustration of this is to be seen at the summit of the mountains back of Alameda. The *castanopsis chrysophylla* in times past had an extensive range over the hills. The trees were destroyed, and stumps from one to two feet in diameter, rotted to their periphery, are the records of former growth. At this time the numerous saplings which have sprung from the stumps have not been able to attain a growth of more than six or eight feet high, while the same tree, along the coast, attains a magnitude of four feet diameter and one hundred and fifty feet high. The soil over these hills is thin and rocky; and were it not for the fog which is both absorbed and condensed by foliage, vegetation could not hold its life. So with the *pinus tuberculata*; it ekes out a moderate existence, growing on the tops of hills as arid as the soil of any part of the valley, depending mainly on the fog for its persistent tenure of a mountain peak.

These remarks cannot be completed without alluding to the destruction of soil and the consequent increased aridity of land due to the absence of forests. Go where you may, over denuded mountains and foothills from Shasta to Tejon, and you will see the results of the actions of Winter rains, in cutting deep gulches and removing large quantities of good soil. It is a destructive operation, and if the number of cubic yards of fertile land which are thus annually carried off to the sea were correctly estimated, it would almost exceed reasonable belief.

In running up the effects of forests or the absence of

forests on vegetation and topography, as affecting the quantity of water in rivers and springs, the following conclusions are deduced:

That the amount of water absorbed by the roots of trees is far in excess of the annual rainfall over the surface covered by trees. That trees by absorbing water from great distances below the surface of the ground and exhaling it in the atmosphere, so far from drying up the subsoil, arrest the process of evaporation therefrom by furnishing a large amount of moisture which otherwise it would not receive. That naked hills, exposed as they are to pelting rains, become apparently impervious to water, so that every rainfall washes and erodes the surface, and carries off much soluble organic matter. That forests prevent this waste of water and its erosive action, and by the annual shedding of leaves afford the large mass of material for conversion into vegetable mold, while a constant moisture beneath is favorable to the oxidation of mineral substances, thus leading to the formation of soil. That only about one half the rainfall of every year is absorbed by the unprotected ground; the balance passing off along watercourses into rivers and bays. That the combined action of exhalation from trees and the condensation of fogs by vegetable tissues, while reducing the average temperature of the air, adds materially to the supply of moisture which is necessary to maintain the growth of plants. That with the foregoing results, a supply of water from springs and the volume of water in creeks and rivers would be more copious and constant. That reduction of temperature by increase of moisture along our great valleys and elsewhere, would necessarily lessen the activity of vegetable decomposition, and destroy or abate the extensive incubation of malarial disease.

Should the last induction be considered too hypothetical, I herewith subjoin an extract from a paper recently read before the California Academy of Natural Sciences, by B. B. Redding, who, as a scientist, brings careful observations and correct reasoning to act on existing phenomena:

"Delano is a station of the Southern Pacific Railroad on

the treeless plains of Tulare Valley, the nearest station to Tulare Lake, and under the direct influence of the prevailing winds that blow, during the Summer and Autumn, from over the extensive marshes made by Buena Vista and Kern River Sloughs before their waters are drained into the lake. During the construction of the railroad, and for some years afterward, relative to the number employed, more men afflicted with malarial diseases were sent to the Railroad Hospital at Sacramento from this station than from any other point on the road. In the Spring of 1876, the Directors ordered one thousand of the eucalyptus globulus to be planted in a triple row near the railroad track between the station and the marshes. These have grown rapidly, and now average more than twenty-five feet in height. The yearly average of patients sent to the hospital with malarious diseases from this station, from 1873 to 1877, was about twenty-five. In 1878 it was reduced to eight. Mr. R. Forbes, who has charge of the records of the Railroad Hospital, in writing me as to the sanitary condition of different stations on the road, says: 'The health of the men all along the line appears to be much improved during the last two years, which is probably due somewhat to the culture of blue gum trees.'

"For the purpose of obtaining statistics of the health of the inhabitants of the village, who were not employés of the railroad, the Engineer Department wrote to Mr. Defos du Bau, an extensive wool-grower at Delano, who employs many men. In his replies he says: 'The population of Delano is nearly fifty persons, but it increases to more than double in March and April, August and September. At these two periods we employ fifty men in our corrals. Intermittent fevers commence in Autumn, and continue a part of the Winter. In 1874 and 1875, with two exceptions, every one had fever. In 1876 it was the same thing. Out of forty-five men employed at the corral, fifteen shearers were taken sick, forty-eight hours after we had a sand storm caused by a southern wind, and the others were attacked the following day. In 1877 there were but three or four

cases amongst our people, and seven or eight amongst the floating population. In the year 1878 there has been no sickness from intermittent fever. We attribute this change to the trees you have planted, and to those which we ourselves have also planted.' "

As the principles involved in producing a result of this kind are general, it is not to be inferred that the eucalyptus is the only tree applicable for the purpose. The rapid absorption of water, and the conversion by chemical reactions in the sap of malarial poison into inert substances, or its elimination through the leaves, and the condensation of fog vapor, and the cooling of the air to an extent which will arrest vegetable decomposition, are the main conditions under which the incubation of poison will be arrested. And, theoretically speaking, it appears that any tree which fulfills these conditions will produce similar results. Eminent among these, as already stated, are the oak and the redwood, and other pines. The question may be definitely settled by experiment.

In conclusion, one more question remains to be eliminated. How is this project of planting forests throughout the State to be accomplished? As a matter of pecuniary interest to owners of the soil, but little stimulus should be necessary to prompt them to the work. As a matter of hygiene, the State should exert authority, and require landholders to plant and cultivate a stated number of forest trees every year on their premises. So far as Government land is concerned, provision should be made requiring every settler to have planted around his premises, and to keep in a state of good cultivation, a given number of trees, before a patent shall be issued for the land. And a commission should be appointed by the Government with power to protect existing forests from unnecessary destruction, and to enforce provisions which may be made for the cultivation of new ones.

REPORT OF COMMITTEE ON MENTAL DISEASES.

BY A. B. STOUT, M. D., CHAIRMAN.

TO THE MEDICAL SOCIETY OF THE STATE OF CALIFORNIA: Ladies and Gentlemen: The study of "Mental Diseases" embraces a larger field than at first glance would appear. The time is not far remote when the insane were viewed as denounced by the Creator for their sins of religion and thus castigated by a divine punishment. Being then so scourged by the Almighty will, they were religiously and socially deserted by man. Under these ideas the condition of the insane was truly appalling. They were controlled by force; whipped and chained for disobedience, and deprived of human sympathy. Hence the ratio of mortality among the insane, augmented by aggravating instead of relieved by ameliorating conditions, was exceedingly high.

In the present era in which mental diseases are viewed strictly as diseases of the brain, a new light is shed more intellectually brilliant than the new found electric luminary. To the present mind how intense was the darkness, which this transcendant light-beam has dispelled. The old dominant theological and metaphysical ideas that the mind moved in an independent sphere, with the body for its casket or recipient, have yielded to the force of scientific positivism, whose light will henceforth forever glow with hourly increasing splendor. Let the mind cast back one shuddering glance at the cruelties and horrors perpetrated in in that theocratic age, which but for the victory of science and extension of learning, would still be preëminent, and then seek to forget forever the dark and griefful picture. In mercy we may say: "Forgive them, Lord, they knew

not what they did." The mind is the pilot of the human organism. That organic construction, the highest illustration of all nature's physical and transcendent organic principles, is controlled and guided by a presiding genius—the human will. In the good olden time, a boat propelled by oars, was significant of the gauge of knowledge which then existed; ethnically it proved a consistent perception of the elements of dynamics. Later the pompous triremes of Grecian attack and defense gave to Greece victory and wealth, because her advanced science put her in possession of practical weapons against which her intrusive enemies could not compete. Later still and now the architecture and full equipment of an iron-clad steamship, whether of war or peace and commerce, is a type of the cumulative application of the resources of physical science to promote the arts of enlightened life. But while the mechanism and the power of the great iron-clad has attained this superiority, the noble ship of the mind has received but equivocal accessions of power. The little boat, his force propelled so swiftly through the water, now rests useless on the shore, but no strength has been added to his physical state to move the ponderous steamer.

To man, however, was given a higher source of power. He was endowed with the force of intellect. He was furnished with a brain of extraordinary capacity, and a head with a cerebral area superior to all other created beings. Of this brain the mind is the exponent, and the will is the expression of its dictates. But the pressure for work on that brain and the tension on that mind to meet the requirements of to-day's science, art and trade, is no longer that of the good olden time. The will that could drive the agile little boat is now called upon to handle the complex man-of-war.

Can it be wondered at, in this state of exaggerated demand for knowledge, that the brain should so often yield to the pressure, and the mind, driven beyond its reason, should engender unnatural wills and finally explode in wild insanity? It is under this pressure of high wrought educated

mind that all civilized nations are now compelled to exist. Every individual of every such nation is required to respond to the emergency. He must be educated or he must sink. Before this pressure of the age the old time honored nations of Asia are now making their death struggle for existence. What valiant Schamyl can withstand the modern rifle and heavy cannon? Aided by this power all the long hidden lands and peoples of Africa must unbolt their treasures. Before its inspiring influence the ice-guarded regions of the Polar Zone must be o'erclimbed—driven forward as before a storm; the ambition of honor and the lust for wealth of these progressive nations, armed with the appliances of modern science, will burst through mountains or override them; will force oceans to unite, bridge over chasms, and attain all those lofty aspirations which in the good olden time were never dreamed of. Are we then to wonder that the ratios of insanity, under these high pressure efforts, are in excess in the ratios of disease and population? It must follow that the ratios of insanity in the vital statistics of disease are on the increase, and that insane asylums are demanded in greater number; for while we might suppose from the great revolution just alluded to in the philosophy of insanity and the advanced state of psychical pathology and positive therapeutics, that the ratios of insanity must necessarily decrease; yet the fact is that insanity augments greatly its proportion in the averages of disease and mortality.

For the reason stated, our asylums are overcrowded. Napa will not long relieve Stockton, and another relieving institution will be required.

In this new order of things it becomes easier to define insanity. A definition of insanity has been a puzzling issue, especially in the hypercritical contentions of jurisprudence, and regularly, when the expert is called to the witness stand, the poser comes, "Well, doctor, what is insanity?" The varying definitions of authorities fill several pages.

From the fact that no two human minds are identical, it may not be possible to fix one general definitation of insan-

ity, in abstract words. The fluctuations of mind, then, require that the definition be drawn, especially for litigation, from the specific norm of every special mind. With this proviso, then, we may venture to say that

INSANITY

Is an aberration of the mind by disease or disorder of the brain, from its own individual normal standard.

Insanity is a *symptom*. It is an outward psychical sign of an inward physical disorder. No brain in a perfect normal physiological condition will produce abnormal psychical effects. Every mental alienation is the product of a pathological aberration of nerve tissue. The slightest unhygienic alteration of the nerve-tissue nutrition must necessarily be followed by a corresponding deviation from the norm of the cerebral mechanism. Transient changes in the latter will only cause evanescent fluctuations of the former. The nutrition of the former infallibly modifies the evolution of the latter. As is the body, when only for a day, so is the mind for that day. The quick restoration of the body from its aberration is followed by an equally rapid renewal of the mind from its alienation, by the quick reform of its nerve-cell origin. Hence, we may clearly assume that there is no such thing as absolutely functional disease, purely independent of organic change of tissue. However convenient in practice and in nomenclature it may be to classify diseases as functional or organic, in absolute philosophy the former cannot exist. As in chemistry no new molecular construction can form without a new atomic combination, so can no new correlation of ideas, whether sane or insane, evolve without an altered coördination of nerve emanations, from modified cell nutrition.

Our microscopical researches cannot so magnify these infinitesimal changes in cell construction to make them visible, nor can our psychological perception penetrate and render sensible to the mind the fine vacillations on the con-

fines of sane mentality and mild insanity. But, so we believe, it is a structural change precedes every mental aberration. In treating, therefore, of mental diseases, I shall feel free to include all maladies of the general nervous system; all functional and organic deviations from health of the brain and spinal cord from its peripheral terminations to its centro-origin.

PSYCHOSIS.—NEUROSIS OF THE MIND, OR MENTAL DISEASE.

Psychosis may proceed from a diffused influence propagated through the entire cerebral system, as in the advancing stages of various fevers, or it may result from the transfused influence of a local disease, as from the irritation of distinct focal abscess, or the inflammation of a special focus or nerve center.

It is an exceedingly appropriate remark of Huguenin, that "after an injury to the head, a psychical vulnerability often remains, which does not lead to a manifest psychosis, unless some exciting cause be added."

In studying the development of the brain and spinal cord, the true key of diagnosis, mental aberrations inclusive, is obtained. This has been a "deadlock" for ages. The next fifty years will file off old rust, and throw new intelligence into Pandora's box.

Our personal resources are limited, for we have no asylum for lunatics at our command. Science demands fact. Fact is the offspring of close-down scientific research in mental disease. This can be found only in public institutions. When will American legislatures make provision and appropriations, as is done in Europe, for scientific study in our State asylums? A small appropriation would enlist a scientific corps, a special pathologist, in both our Stockton and Napa asylums, which would produce an annual illustrated report of observations invaluable to the relief of the future insane. In material comfort, nay, extravagance, the asylums of California are not excelled; but where is the intellectual scientific dividend, accruing from the

present, for the benefit of the future? Zeal in the profession is abundant; but even economic legislation forgets that learning needs support, and that the dividend of study is the life and the profit of the people.

LOCALIZATION OF CEREBRAL NERVE CENTERS.

This subject in neurology is the interesting topic of the day. It is procuring in the diagnosis of cerebral diseases a refinement hitherto unknown, and still not fully appreciated; for in its wake must necessarily follow an equivalent precision and refinementt in therapeutics. The discrimination in the application of alkaloids now so empirical, will be more sharply defined. A clearer perception will be obtained between motor origins, sensory origins, and vasomotor origins of disease. Many singular acute local neuralgias, especially certain unintelligible local cutaneous affections, will find their explanation in a knowledge of the trophic nerve centers.

DEVELOPMENT OF THE CEREBRO-SPINAL SYSTEM.

The cranio-spinal groove axis, in the embryo, contains originally a thin flat band extending along the entire groove. The margins of this band presently bend backward until they finally meet. These edges then fuse, and thus form the *cerebro-spinal tube*, and appear primarily as a continuous straight cylinder. In the walls of this tube, the nervous structures of the brain and spinal cord are formed, whilst the axis of the tube forms a central canal. The upper or cerebral end of this cerebro-spinal tube becomes the *brain*. At first, the cerebral part of the tube is uniform in appearance with the spinal part, but it soon expands into *three vesicular dilatations*—the *primary cerebral vesicles*. These vesicles, naming from before backward, are called the anterior, middle, and posterior vesicles. They separate from each other by constrictions of the tube. As development progresses these vesicles bend on each other and on the upper end of the spinal cord. As each vesicle is an

expansion of the cerebro-spinal tube, it is necessarily hollow, and the space in its interior is continuous with the central canal of the spinal cord. In the walls of the vesicles the nervous structures are produced which form the several divisions of the encephalon. The posterior cerebral vesicle bends first forward from the upper end of the spinal cord and then backward; the part which bends forward becomes the *medulla oblongata;* that which bends backward, the cerebellum; whilst the pons is developed at the angle where these two parts are continuous with each other.

The middle cerebral vesicle bends forward from the posterior vesicle. In its roof the optic lobes are formed; in its floor the *crura cerebri*, and the central hollow is the aqueduct of sylvius. The corpora quadrigemina are next developed in this vesicle. The anterior cerebral vesicle now bends downward from the middle vesicle. In the posterior part of this vesicle the optic thalami are formed, one on each side, while the central hollow between constitutes the third ventricle. The antero-lateral parts of the antero-cerebral vesicle are prolonged forward as two hollow processes—the hemisphere vesicles—which become the cerebral hemispheres.

By retaining in mind these great primary compartments in cerebral anatomy [See Art. Anatomy, vol. 1, Ency. Britannica] great aid will be had in the localization of cerebral disease. As evolution progresses, the multiplication of cerebral functions and the increase of local nerve foci become so numerous, that without such a primary guide, localization of mental and organic manifestations becomes exceedingly complicated; as an instance, take the relations of aphonia and the loss of speech, with those of atrophy or paralysis of the nerve centers of language; the former localized in the *medulla*; the latter in the anterior cerebral lobes.

ALCOHOL AS A CAUSE OF MENTAL DISEASE.

The exhaustive work of D. Hack Tuke on this question covers the field. The only trouble is that those "who run"

do not read. If the humanitarian societies and Boards of Health, paid through State and municipal taxation—the former circulating Bibles and tracts; the latter seeking to diffuse hygienic regulations—would issue a free edition of the work, accessible to all readers, a universal benefit might be achieved. Awaiting such an unexpected event, the agreeable and sanitary *use* and the abuse, so degenerating to a nation, cannot be too much dilated upon.

It is the grand overruling factor in insanity. It is the great Nihilist and Communistic agitator of rational government. The whisky-bottle is the gun used to force the ballot-box, and its aim threatens to be fatal to that order which is Heaven's first law.

The "Commercial Advocate," August 10th, 1878, says: "We are a bibulous people. Statistics furnished by the Commissioner of Internal Revenue, show that during the year 1877, nearly 59,000,000 gallons of spirits, 9,902,353 barrels of ale, beer and porter, and 5,723,000 gallons of imported wines, were manufactured and withdrawn for consumption in the country at large. The number of liquor dealers who paid tax was 166,000, and it is estimated that the amount of money annually expended in the United States by consumers, is nearly $596,000,000. This is at the rate of about fifteen dollars to every man, woman and child in the country."

Seneca declares that "drunkenness is nothing else than voluntary madness," and in this view "the ancient Greeks punished with double rigor any crime committed in liquor; first and principally for getting drunk, and secondly for the crime committed; for certainly, he who eradicates his reason deliberately, as drunkards do, is much more guilty of what is committed for want of that reason, destroyed by his own fault, than he whose reason is overcome by any accidental attack of passion."

This argument combats that of the non-responsibility for acts done in a state of inebriety. Lord Bacon affirms that "All the crimes on earth do not destroy so many of the

human race, nor alienate so much property, as drunkenness."

Fielding's sarcasms makes it out that "Thirst teaches all animals to drink, but drunkenness belongs only to man." And the common proverb curtly disposes of the question by saying, "He that is drunk is gone from home." One more authority we cite to show the heredity or transmissibility of the influence of alcohol on the brain.

It is remarkable, says Dr. Darwin, "that all the diseases from drinking spirituous or fermented liquors are liable to become hereditary, even to the third generation, and gradually to increase if the cause be continued, till the family becomes extinct." This is not particularly remarkable, for the progeny is the likeness of the parent, not only in external feature but in cerebral conformation and development. Who has not seen the distorted lineaments of the intoxicated father upon the face of the innocent growing son?

We learn from the United States Internal Revenue Office that the duty collected on distilled and fermented liquors was, in 1877, $57,469,429; in 1878, $50,420,815. The monthly income on malt liquor at one dollar per barrel is $30,000 for this district; equal to $360,000 per annum.

From the License Collector's Office it appears that there are in San Francisco 2,300 bars, paying twenty dollars per quarter year—that is $184,000 per annum.

This paper does not permit further estimates. With some labor the amount collected by the United States and every district of each State might be computed. But certainly the consumer pays well for his spiritous whistle. For our own part we must leave the philanthropic moralist and the political economist to determine whether or not it is better for the individual to die that the State may live. The former, at least, may enjoy the consolation that his spirit and his body have gone for his country's good.

When further research shall confirm, it will probably be found that the action of alcohol in excess, and habitually indulged in, on the brain, is to produce a gradual chronic disintegration or granular degeneration of the nerve-

cells of the gray substance and of the neuroglia of the motor-nerve fibers, acting not only in the brain but also in the ganglia of the spinal cord. As the speech is very early affected in incipient intoxication, as well as loss of coördination in the muscles, and as so many of the cranial nerves emerge from the *medulla oblongata*, we might suppose the primary organ affected to be the *medulla oblongata*. Mental exhilaration precedes these effects, and it may be that the anterior lobes of the brain being first to feel, are the first to degenerate under the repeated introduction of the poison. In either case the radiation of its influence through the entire cerebro-spinal system is very prompt. The early loss of memory and the gradual changes of character would seem to support this view.

However agreeable alcoholic drinks may be to enhance the pleasures of social intercourse by their quickly enlivening spirit, they eventually enervate the mind. However important they may be to rouse the exhausting faculties, or when occasion may require that the brain be excited to its utmost capacity, whether for the emergencies of fatigue, or war in battle, or in the low stages of consuming fever, they finally become the most irremediable debilitants. The best proof is the languor and prostration which follow the drinking bouts. These are always prolonged as the bouts are repeated. The insanity of intemperance is general anæmia. Delirium tremens is a disease of nervous exhaustion and debility, as shown by the increased quantity of nutritious food required after the violence of the attack is past. The loss of procreative disposition and power is another evidence. The derangements of digestion which ensue demand tonics for their restoration. The progressive paresis with final incurable paralysis, and the downward phases of psychosis will together suffice to determine the question, that the stimulant which we have shown so largely used by the people of our nation to inspire their imagination and reinforce their strength, is in fine the deadliest enemy to and unpardoning exhaustive destroyer of their vital energy as men and their dignity as social citizens.

To the youthful beginner then, we would fain utter the warning, "*Finis aborigine pendet.*"

Our end hangs on our beginning, and a bad beginning weaves hemp for the Sheriff.

INSANITY FROM STOCK AND MINE GAMBLING.

A new and fertile source of insanity in California is rapidly germinating and expanding its roots in our moral and intellectual soil.

SUICIDE has come to be considered as one of our Californian epidemics. The bull and bear malaria defies the hygienic laws and escapes every hydraulic and moral trap set to intercept its permeability into every domicile. Society owes thanks to the able elucidation of this subject by Alexander Del Mar [See Scientific Press Supplement, February, 1879. Address read before the California Academy of Science], and whose statistics I have hereto annexed. Every one should read what we would gladly adopt as our own. The remarkable table of suicides deserves comment, viz., in eighty-four suicides:

1. Stocks, stated	22
2. Insanity (cause not stated) probably	2
3. Intemperance " " "	4
4. Unknown " " probably of 27	12
	40

Being out of eighty-four probably forty.

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SUICIDE AS INSANITY.

Reported number of suicides in San Francisco:

YEAR.†	SUICIDES.	YEAR.†	SUICIDES.
1860	31	1870	47
1861	30	1871	51
1862	13	1872	37
1863	18	1873	38
1864	20	1874	61
1865	17	1875	64
1866	24	1876	70
1867	29	1877	76
1868	28	1878	103
1869	39		

†Ended June 30th.

During the calendar year ended December 31st, 1877, the following suicides, with their supposed causes, were reported in the San Francisco Chronicle:

ASSIGNED OR SUPPOSED CAUSES OF SUICIDE.	MALES.	FEMALES.	TOTAL.
Losses in mining stocks, etc	20	2	22
Insanity (cause not stated)	5	0	5
Intemperance (cause not stated)	12	0	12
Incurable disease	7	0	7
Love	4	3	7
Ill treatment	0	2	2
Religion	1	0	1
Remorse for murder	1	0	1
Unknown (or not stated)	24	3	27
	74	10	84

LOVE AND RELIGION

(Viz: Love 9, and religion 1), appear to have kept up their normal ratio as opposed to whisky and stock in California; religion emerging from the maelstrom of insanity as almost perfectly sane, having only one aberration to cite.

KLEPTOMANIA.

This form of insanity is on the increase, or at least is more frequently introduced as an extenuation for crime. The bitterest sarcasm and omnipresent on human honesty, is a bunch of keys. Locksmiths make fortunes out of man's dishonor. The practical method of restraint is about as ineffectual as the moral mode of the church. The thief breaks the lock with the same indifference with which he breaks the divine commandment. Hence, the parent who is incessantly plotting burglary, is as apt to transmit a kleptomaniacal diathesis to his offspring's brain, as he is to bestow his external personal likeness—similes similibus. Here is a psychical illustration of what has been before stated. The professional robber implants the vulnerability upon his offspring's brain, and the offspring under a stimulus of a temptation becomes a natural thief. This temptation may become irresistible, and the result-

ing kleptomania often places many a respected person in the saddest position.

Kleptomania may, however, be generated from a cerebral lesion in the appropriate nerve focus, without being necessarily hereditary. The stealing of comparatively worthless objects by wealthy people amply provided with the luxuries of life, and at irregular intervals—for such kleptomaniacs at other times give, buy and sell with perfect honesty—points to the idea that this disease may be a form of masked epilepsy.

FEVER, A CEREBRAL DISEASE.

Would that we could contemplate and treat all fever as simply an organic disease of the brain! A great simplification would be attained in pathology, and all fevers would be resolved in one general type. The term *fever* meaning only *high heat*, to *be heated*, is inexpressive and vague.

The varieties, as now classified—continued, remittent, intermittent, typhus, and typhoid—are only indifferent expressions, yet unanalyzed, of cerebral conditions. Exaggerations of normal ebbs and flows of vital force, emanating from the brain. Humoral pathologists may contend that fever is the product of a disordered state of quantity or quality, and certainly the condition of the blood is an important factor in fever. But it is only the motor of a cause, the chief center, seat and laboratory of which is in the brain, and probably the gray nerve centers of the hemispheres. Whatever point may be determined to be the central focus aborigine, the morbific action is quickly radiated through the entire nervous system, and hence evolve the various febrile symptoms, the aggregate of which we are, at present, contented to call *fever*. All these symptoms, however, whether those primarily in the brain, or consecutively in the peripheral organs; whether communicated through the motor nerves or the sensory; whether transmitted by the sympathetic pneumogastric system, the vaso-motor nerves, or the trophic ramifications, are but

emanations from the great encephalic center. The voice of brain suffering is uttered at the distal termini of its nerve cords. The nerve centers or generating ganglia are themselves silent and speechless. Their language is their special function, and these functions exaggerated by disease are the symptoms of fever, thus: mania and idiocy are the apposite exaggerations of the intellect. Ringing in the ears, or deafness of the auditory nerves, exalted sensibility to light, or amaurosis of the optic nerve, humors, convulsions, or paralysis of the motor nerves, palpitations of the heart, difficult breathings, coughs, without local disease, vomitings, diarrhœa, renal symptoms, and the various manifestations through the skin, all are but the telegraphed sufferings of the brain. It is that language which we now name *fever*. On this assumption we may consider fever in its incipiency a superheated condition, or hypercalorification of the brain and nervous system. Attaching thereto its morbific origin, we get hyperæmia as the pathology of mild evanescent fever, while fever in its most aggravated forms would constitute *encephalitis*. A distinguished pathologist in nervous diseases (Huguenin, Ziemsen's Cyclopedia, Vol. XII, page 689) has declared that the first case of idiopathic encephalitis is not yet recorded. That such a disease has not yet been histologically demonstrated may be very true. There is very much in cerebral pathology that has not yet been pictured on the microscopic chart. But let us not despair. The term idiopathic is itself vast and vague. If it implies diseases arising within an organ without any known external cause, we may ask if an external cause, direct or indirect, is not the *fons et origo* of every inflammation in every organ? Or if there can be an idiopathic fever, or an idiopathic inflammation in other organs, why may it not occur in the encephalon? The absence of the signs in the center of that organ proves nothing, because its most apparent signs are expressed at the peripheral ends of the nerves. Though the scalpel and the microscope with its frozen and colored

sections of brain tissue, may fail to demonstrate morbid tissue alterations, yet the philosophy which teaches that for every abnormal symptomatic eccentricity there must be a positive molecular organic tissue aberration, should also satisfy the mind that encephalitis may exist, and that future research will make it indisputably manifest.

REPORT ON MEDICAL EDUCATION.

BY C. N. ELLINWOOD, M. D., CHAIRMAN.

MR. PRESIDENT AND FELLOW MEMBERS OF THE CALIFORNIA STATE MEDICAL SOCIETY: The present condition and prospective advancement of medical education in our own State, in the United States, and in all enlightened countries, is highly gratifying to those most familiar with the modern methods now generally adopted by medical schools, and with the acquirements of medical scholars. Now, much more than formerly, are the principles taught in didactic lectures enforced by recitations and clinical studies, in such manner as to discipline the student's mind, store the memory with useful facts, and by the exercise of the reasoning faculties, mature the judgment. To this is added the practical training of the student's sight, hearing, and touch, in the use of the many recently invented aids in diagnosis and treatment.

The modern methods of teaching the several branches of the science and art of medicine, enable the young graduate to meet emergencies in practice, and to successfully compete there with his seniors; and as a further evidence of the efficiency and advantages of modern medical schools, I make mention of the fact, which will be evident to most of you here present, that as a rule, professional success has been attained much earlier in the life of the practitioner during the present decade, than was possible to those who studied medicine under the older methods of teaching.

With the increase of human knowledge, the growth of nations, and the concentration of people in large cities, the extension of commerce, and the rapid commingling of the

different races and conditions of men, bringing contagion from pestiferous places, and germinating it among populous communities, are causes which have notably widened the domain of medicine, and created a popular demand for a greater number of scientific physicians.

The intelligent merchant, whose capital is in goods and ships on the sea, has learned that the success of his venture depends greatly upon the health and physical efficiency of his crew. The commanders of armies and navies now realize how much the success of campaigns depends upon the ability and organization of their medical corps. The intelligent citizen has learned that his domestic felicity and his pursuit of happiness depend upon the salubrity of his surroundings; and the statesman has learned that the welfare of his country, its highest development and the best enlightenment of its people, depend vastly upon sanitary laws which give the best protection against epidemics and endemics.

With the increase and diffusion of intelligence and refinement among the people, there is necessarily a greater concern for human health and life, which has notably widened and heightened the *sphere* of the physician. His knowledge and counsel are in these days more frequently sought, and new avenues of usefulness are being constantly opened to him.

Medical education has not failed to appreciate this enlarged domain of the physician, and to anticipate the many and varied demands made upon his knowledge; and the medical college which fails to prepare its students for the exalted, responsible and honorable title of doctor of medicine, by a thorough training in the higher as well as the elementary branches of medicine, fails to meet the wants of the age and country, and fails in commanding the confidence and patronage of students and the profession.

It is my privilege to report that the generally enterprising medical colleges in America have enlarged their courses of study and extended the period of college tuition. The two regular medical schools of California have taken ad-

vance ground in this, now requiring three years of study in the college and also a liberal education of the matriculate before entering upon the study of medicine. These requirements are now well established in several of the prominent colleges in the East, and others not having adopted the three years plan, have very considerably prolonged their regular terms of teaching, and by extra or Summer sessions, they crowd much more study into the two years than formerly.

It has been too much in vogue to charge our home colleges with being young, cheap, easy to graduate from and dangerous to the community. I take this public opportunity to protest against such injustice. Invidious remarks and complaints will not be made against our colleges by any fair minded intelligent man who is familiar with the curriculum now generally adopted, and the high standard of attainments required of the graduate.

There exists a healthful rivalry between medical schools, which stimulates a laudable emulation in teaching and in affording the student the best facilities attainable for acquiring a theoretical and practical medical education. There exists also a natural competition between practitioners of medicine, which fosters continued study and observation—essential factors in conquering success. Such competition, guided by the good fellowship and personal regard for those of allied interests, with minds chastened by long study of nature's laws, and the practice of our art in assuaging human suffering, and in the observance of the established professional ethics, wisely made for the good of all, should quicken our progress, elevate our calling, and increase the usefulness and influence of medical education throughout the land.

ON THE RELATIONS EXISTING BETWEEN DISEASES OF THE EYE AND GENERAL AND SPECIAL DISEASES.

BY A. BARKAN, M. D., CHAIRMAN.

The Transactions of the Medical Society of the State of California during the years 1877 and 1878 contain the first report on ophthalmology ever presented to the members of this Society. In that report it was thought proper to bring to the notice of the Society "some of the more recent improvements made in that branch of surgery."

The Committee was wise in thus introducing ophthalmology to the forum of this Society, under the banner of surgery, for by so doing attention was more likely to be directed to its importance, a greater interest be excited, and a more friendly welcome be secured for the novice. Still, though a novice, surgery need not be ashamed of such companionship, for even a mere cursory glance at the steady improvement in the old and well tried operative methods, and at the many ingenious operations effected by the new methods, will convince all interested observers that thinking brains and skillful hands are constantly at work to promote the progress of ophthalmic surgery.

The surgeons of our Society having last year extended the hand of good fellowship to their brethren of the ophthalmic lance, making them heartily welcome, and with their friendly breath giving warmth to the surgical half of our ophthalmic body, it is only natural that this year the medical half should desire to undergo the same invigorating process; heretofore keeping one eye on their surgical friends, the other, after the fashion of a slight divergent strabismus, is turned towards the medical part of

this honored assembly, asking for admittance into the halls of general medicine, feeling safe in making this request, inasmuch as it is based on the certitude that though brilliant therapeutic results in ophthalmic practice are achieved surgically, ophthalmology stands nevertheless in even closer connection with general medicine, and modern ophthalmologists earnestly desire and endeavor to strengthen the ties existing between them so as to facilitate the diagnosis of serious and obscure forms of diseases of various organs of the body by examinations of the eye. The darkness which reigned for centuries in the rear part of the living eye, preventing direct examination of that part, has vanished. No longer does the term "amaurosis," as in olden times, cover a multitude of diagnostical sins—the ophthalmoscope enables us now to examine the remotest corners of the inner eye; and we have learned to recognize and distinguish the varied, important and interesting diseases which affect that organ. Great progress has likewise been made in tracing the many links which connect general diseases of the body with diseases of the eye.

Although numerous contributions to medical literature on this subject have appeared at different times, it is only very recently that Professor Foerster, of Breslau, as eminent as a clinical professor as he is as an oculist, has described exhaustively, for the first time, the manifold relationships existing between general diseases and affections of the eye in their whole extent. This work, written in German, occupies nearly a whole volume of a recently published encyclopedia of ophthalmology, an elaborate and expensive work, designed more particularly for the use of oculists. Appreciating, however, the value that the work must also possess for the medical practitioner, I determined to make and translate excerpts from it and to offer them as my contribution to this year's transactions of the State Medical Society, instead of the usual report on ophthalmology.

During the progress of my work I have been made fully aware that translating a scientific work from German, which is my native tongue, into English, is a very difficult task, and it is probable that the translation savors strongly of the original language. I therefore, gentlemen, beg your indulgence for all errors, and trust that the object which I had in view, that of drawing attention to the many connections existing between general medicine and ophthalmology, will, notwithstanding many faults, be attained. With this hope I submit this treatise to the kind consideration of the members of the State Medical Society:

SECTION I.—ON THE RELATIONS EXISTING BETWEEN DISEASES OF THE ORGANS OF RESPIRATION AND CIRCULATION, AND DISEASES OF THE EYE.

In consequence of venous stagnations caused by quickly passing impediments in the pulmonary circulation, extravasations often occur under the conjunctiva, and in the loose cellular tissue of the eyelids, in whooping cough, and after violent vomiting. Emphysema, one of the most frequent chronic affections of the lungs, often causes rupture of actual blood vessels, owing to the impediment in the venous circulation. In no part of the body are small blood vessels during life under such direct observation, as in the ocular conjunctiva and the retina. Extravasations of blood in these parts, if of repeated occurrence, indicate diminished power of resistance in the blood vessel, due to fatty degeneration of their walls, and to a simultaneous fatty degeneration of the tissues of the heart. The presence of "arcus senilis"—the result of fatty deposits in the peripheric zone of the cornea—must particularly arouse suspicion of existing heart disease, attended with fatty degeneration of the tissues of the heart, especially if observed in the young. Serious changes in the composition of the blood also indicate general impairment of nutrition of the walls of the blood vessels. Biermer observed retinal apoplexy in thirty-five cases of "anæmia perniciosa progressiva," ac-

companied with capillary blood extravasations in different organs.

Aneurisms of the carotid, truncus anonymus and aorta, cause, through pressure on the sympathetic nerve, pupillary contraction of the corresponding side. A diminished tension, and a considerable change in the tension of the arterial system, produce pulsation of the retinal arteries in nearly all cases of insufficiency of the aortic valves—an important fact, first discovered by Becker of Heidelberg.

Diseases of the heart, endocarditis, valvular disease, carotid aneurisms and sclerosis of the arteries occasionally cause embolisms of the central retinal artery. They can be easily recognized ophthalmoscopically, by the extreme attenuation of the arteries, and by a whitish opacity of the retina round the optic papilla and yellow spot. An hemorrhagic obstruction in the retina, subsequent to the embolism of a branch of the retinal artery, has likewise been described by Knapp.

The presence of tubercles in the choroid, recognizable with the ophthalmoscope, is a fact of considerable importance to the general practitioner. Cohnheim has demonstrated by numerous post-mortems, that in all cases of acute far-spread miliary tuberculosis, miliary tubercles were found in the choroid, and that those are never found, when only pulmonary or intestinal tuberculosis is present. Thus miliary tubercles are most often seen in the thyroid gland. Seen with the ophthalmoscope, they look like roundish spots of a yellowish red color, about one-third to one-half the size of the papilla optica. A few cases have been observed, where tubercular iritis has co-existed with tubercles in the choroid, in the eyes of persons who had died of miliary tuberculosis.

SECTION II.—ON THE RELATIONS EXISTING BETWEEN DISEASES OF THE ORGANS OF DIGESTION, AND DISEASES OF THE EYE.

It is a generally entertained opinion that dental irritation, and diseased roots of teeth, cause various diseases of the

eyes; amongst others must be mentioned, simple conjunctivitis; phlyctenular conjunctivitis—said to be due to dental irritation in children; amblyopia and amaurosis. These diseases sometimes disappear after the diseased tooth has been extracted, or they may only be relieved. The pathological process which takes place in the optic nerve and retina during these dental diseases, is not exactly known. In some cases nothing abnormal can be discovered with the ophthalmoscope in the retina; in other cases opacities are observable; and in others atrophy of the optic nerve.

Taking into consideration that diseased dental roots cause violent neuralgic attacks in various branches of the trigemini; that furthermore, severe neuralgia of the trigemini often causes intense lachrymation, conjunctival injection, and even in some rare cases, considerable and long continued swelling of the transition part of the conjunctiva, it is certainly not unjustifiable to suppose that the diseased dental roots may lead to changes in the retina, in the optic nerve, or in the cellular tissue of the orbit. At present, however, there is nothing ascertained on this subject with scientific exactness.

With respect to diseases of the stomach hæmatemisis, which is one of the gravest forms of bleedings of the stomach, often causes considerable impairment of sight, even absolute amaurosis. This disease is evidently occasioned, not so much by the bleeding which takes place in the stomach, but by the bleeding being so considerable that it leads to blood vomiting. Ophthalmoscopically is revealed white atrophy of the optic nerves; retinal blood vessels slightly narrowed, and occasional opacities in the retina. It is probable that the changes in the composition of the blood, owing to sudden and intense loss of blood, causes a serous infiltration of the retina, extravasation of blood through the retinal blood vessels, and atrophy of the optic nerve. It is necessary to state that this change does not take place immediately after the loss of blood, but only some days afterwards. Partial recovery of sight has been observed even after a long duration of the amaurotic con-

dition. Ophthalmoscopic observations of these cases may possibly throw light upon the nervous symptoms occurring after great loss of blood. A feeling of oppression in the head, headache, and impairment of the power of thinking, are symptoms which may perhaps be caused by changes in the brain similar to those seen in the retina. It has been stated formerly, that helminthiasis causes eye affections, more especially in undue dilatation of the pupil, but no new nor reliable observations on this topic have been published.

It is well known that icterus is easily recognized by the yellowish color of the conjunctiva. In splenic leukæmia, the retina especially, may become the seat of prominent flat tumors, similar to those found in the liver, kidneys, pleura, carotid, etc., and caused by the exit of white and red blood corpuscles through the sometimes fattily degenerated blood vessels. In examining these cases of "retinitis leukæmica," ophthalmoscopically, the background is vividly seen of an orange yellow color, the retinal veins appear unduly distended, rose red in color, and of tortuous course, the retinal arteries narrowed and pale yellow in color; yellowish white spots may be observed in the retina—these latter disappear, but only to return. Retinitis leukæmica is not an invariable symptom of general leukæmia.

SECTION III.—ON THE RELATIONS EXISTING BETWEEN DISEASES OF THE URINARY ORGANS, AND DISEASES OF THE EYE.

Amongst the numerous diseases of the kidneys, it is especially that complex of pathological processes known as "Bright's disease," which influences the eye in various ways.

The chemical and physical data which connect the eye symptoms with affections of the kidneys, are impoverishment of the blood, brought about by continuous loss of albuminous substances, by its becoming impregnated with urea, and by hypertrophy of the left ventricle, which frequently occurs in consequence of disease of the kidneys.

A diminution in the power of accommodation in the eyes of patients afflicted with albuminuria of long duration, is likewise often observed in many other chronic diseases by which the general health of the patient is impaired. The diagnosis of these cases is easy, and proper convex glasses at once restore the acuity of sight.

The observations just made and published by Moritz Heymann of Dresden, on the value of ophthalmoscopical examinations, added greatly to the reputation of that instrument. He demonstrated that by its use, affections of the kidneys could be frequently recognized, which, till then, had been overlooked. The eye was found to present a typical form of fatty degeneration and sclerosis of the retina. In cases of Bright's disease, white wax-like spots are easily seen in the retina with or without extravasations, and sometimes the optic nerve will present the characteristic appearance of engorged papillæ. These changes in the retina are mostly found in cases of atrophy of the kidneys, likewise undoubtedly in acute nephritis, following scarlatina. In cases also of chronic inflammatory swelling of the kidneys, and sometimes, though rarely, in amyloid degeneration of the kidneys, and in women who suffer from eclampsia whilst in labor, and whose urine for many months after giving birth had contained albumen. In these cases have been exhibited the characteristic symptoms of what is best termed "retenitis albuminurica."

It is not yet known positively how the connection between disease of the kidneys and that of the retina is brought about. Traube's explanation, that retinitis is dependent upon an increased tension of the arteries, is made unacceptable by a few cases where morbus Brightii and retinitis were present, but hypertrophy of the heart was wanting. The changed composition of the blood, as in anæmia perniciosa, hæmatemesis, and leukæmia, must be considered the principal cause of the peculiar pathological changes in the retina, although hypertrophy of the heart has its share in causing the extravasations. It is necessary to state that the walls of the retinal blood vessels

in these cases are often found to be in a condition of sclerotic infiltration, or of fatty degeneration; on the whole, retinitis albuminurica is not a very frequent complication of diseases of the kidneys, and the cases probably do not amount to more than six or seven. The appearance of retinitis albuminurica generally indicates a bad prognosis with respect to the life of the patient; by far the largest number die before a regressive change takes place in the fatty retinal exudations.

It is necessary to distinguish carefully between the considerable, though always only partial impairment of sight, which is produced by retinitis albuminurica, and the loss of sight produced by uræmic amaurosis; in the latter, complete, or very nearly complete blindness, is quickly developed. In from eight to twenty-four hours, both eyes become affected, and serious cerebral symptoms invariably present themselves; a tormenting headache, vomiting and convulsions, follow or precede the commencing blindness; the pupils are dilated and do not react to light, or they show reaction to light, notwithstanding the absolute want of perception to light. Patients have been repeatedly examined opthalmoscopically during these attacks, but as a general rule, no trace of an abnormity was discernible in the background. The blindness rarely lasts longer than from twelve to twenty-four hours after the attack; vision then quickly returns, and in two or three days, visual power becomes fully restored. Uræmic amaurosis may be present at the same time as retinitis albuminurica, the attacks may temporarily pass away, and return in the course of weeks or months, whilst retinitis albuminurica continues its course undisturbed. Uræmic amaurosis occurs oftener in acute croupy nephritis, especially in scarlatina, than in cases of atrophy of the kidneys; it has likewise been observed in chronic inflammatory swelling, but never in cases of amyloid degeneration of the kidneys.

The sudden blindness observed during pregnancy or at the birth, with or without eclampsia, and with albuminous urine, is also caused by uræmic amaurosis; these later cases

are much more rare than those of retinitis albuminurica. V. Graefe states, that in thirty-two cases of amblyopia with albuminurica he has found thirty with the characteristic retinal changes; in two of these cases there was no change at all, but strongly developed uræmic symptoms: still the proportion of 1.15 appears too high.

The process in the brain causing this blindness is not yet fully understood; we are, however, justified in supposing that it is the same which produces uræmic convulsions, namely, urea, and its decomposing products, carbonate of ammonia, which, if retained in the blood causes uræmic poisoning of the central nervous system, and together with other uræmic symptoms, brings about amaurosis. Traube, on the other hand, is of opinion, that owing to the influence of the increased tension in the arterial system always existing in these cases, as well as to the watery condition of the blood, copious watery transudations take place into the cavum cranii, which superinduce anæmia of the brain, and that this quickly developing, cerebral anæmia is manifested by convulsions.

SECTION IV.—ON THE RELATIONS EXISTING BETWEEN DISEASES OF THE SEXUAL ORGANS, AND DISEASES OF THE EYE.

Forster first described, under the name of *kopiopia hysterica*, some disturbances in the eye which are caused by anatomical changes; first, in the parametrium, or cellular tissue which surrounds the uterus, and which is abundantly supplied with nerves; and secondly, in the uterus. These diseased conditions must be considered as reflex hyperæsthesia of the nervus quintus and optic nerve. The principal symptoms are: most varied sensations of pain in and around the eyeball, often increased when using the eye, or by a bright light, but felt also when the eye is not used; the pain bears no resemblance to superorbital or ciliary neuralgia. Local examination of the eye usually reveals a normal condition.

Hyperæsthesia, however, not only affects the nervus

quintus, but also the second sensual nerve of the eye, the optic nerve, and is characterized as a sort of photophobia, or sensitiveness to bright light. The patients have good and bad days, and generally make very exaggerated complaints, which are constantly changing. The symptoms increase in intensity just before or during menstruation. The reaction of the pupils and sharpness of sight are nearly always normal. These symptoms are mostly met with in elderly unmarried women, married but childless, or in such who have become prematurely sterile. The general condition of these patients is usually far from being normal. The whole mass of nervous symptoms known as hysteria are often met with, still they may be, in rare cases, entirely wanting.

This complexity of symptoms, which, so far as it relates to the eye, is very characteristic, always stands in causal connection with a peculiar chronic inflammation of the cellular tissue which surrounds the uterus, was first recognized by Professor Freund of Breslau, and was termed by him atrophic parametritis. Although kopiopia hysterica may be considered as peculiar to the female sex, a small number of similar cases have been observed in the male sex, and it is probable that their pathologico-anatomical basis is a defect in the sexual sphere; but this point has not yet been fully ascertained. Kopiopia hysterica *is not curable.* The disease, however, always finally disappears, although, in some cases, only after years of suffering.

Forster recommends as a remedy for the pain and sensitiveness to light, 2–0 castoreum canadense, and 4–0 extract. valerianæ. This quantity to be taken during the course of four days, generally affords relief for several weeks. Zinci acetas may also be tried. Narcotic remedies, quinine, and cooling eye douches, are without effect. Confinement to a totally dark room is objectionable. The use of smoke glasses may be allowed. The treatment of parametritis chronica, the fundamental disease in these cases, is a very difficult one; with finished involution, and progressing age, the symptoms, as far as they relate to hyperæsthesia of

the optic nerve and nervus quintus, disappear, as a rule, entirely. The fact that morbus Basedowii stands in close connection with affections of the sexual organs, has been clearly proved by Freund, and also by clinical observations made by others. Freund found chronic parametritis in ten or twelve cases.

The exophthalmos characteristic of morbus Basedowii must also be mentioned. Becker, of Heidelberg, has called attention to the fact, that the caliber of the retinal arteries is greatly enlarged in this affection, and that they show pulsation; these symptoms are attributable to increased action of the heart.

In regard to the connection existing between disturbances of the sexual sphere and neuro-retinitis, atrophy of the optic nerve, and amaurotic conditions, little more is known than the fact that it exists; it appears probable that in consequence of anomalies in menstruation, of premature involution of the uterus, hyperæmia and subsequent inflammation and atrophy of the optic nerve, are sometimes developed; and it is well known, that out of a majority of women affected by atrophy of the optic nerve, a proportionately large number are those who have been sterile, or have become so prematurely.

Mention has been made of retinitis albuminurica and uræmic amaurosis occurring during pregnancy. There is but one case on record without ophthalmoscopical examination of a woman, who three times consecutively during lactation, became afflicted with amblyopia, and which ended in recovery. Hutchinson has observed weakness of accommodation during the period of lactation. Still more frequently has it been noticed, that weakly women who nurse their children unduly long, often suffer from catarrhalic and phlyctenular inflammation of the conjunctiva, from superficial keratitis and lacu-iritis.

Masturbation is said to cause amblyopia in very rare instances; it likewise renders the treatment of simple conjunctival troubles, which generally heal readily in the young, exceedingly difficult and protracted.

SECTION V.—ON THE RELATIONS EXISTING BETWEEN DISEASES OF THE NERVOUS SYSTEM, AND DISEASES OF THE EYE.

The eyes stand in closer relation to the brain than to any other organ of the body, for the retina and optic nerve must, in reality, be considered parts of the brain; furthermore, five pairs of cerebral nerves—the oculo-motor, trochlear abducent, trigeminal and facial—pass through a short intermediate space to the eyeball, and its auxiliary and protective apparatus. Finally, there exists the closest connection, not only between the arteries and veins of the eye and the blood vessels within the skull, but also in the space between the dura mater and pia mater on the one side, and the lymph spaces of the eyeball on the other.

These multiple connections point in many cerebral diseases to the eye, as the seat of important symptoms which may throw more or less light upon the cerebral affection. There exists an indirect connection between the eye and the spinal marrow through the sympathetic nerve. In irritation of the centrum cilio spinale, seated in the spine near the lowest cervical, and the highest thoracic vertebra, causes enlargement of the pupil.

The supposition that cerebral hyperæmia would be recognized with the ophthalmoscope, with some degree of certainty, has not been verified, although injection of the conjunctiva and contracted pupils have been observed in children suffering from convulsions, caused by passing cerebral hyperæmia. Attention has been called by Niemeyer, to the fact that, in truly dangerous forms of cerebral hyperæmia, brought on by excessive brain work, after long continued wakefulness, the contents of blood found in the external parts, do not correspond to the hyperæmic condition of the brain. No marked changes in the retina or optic nerve have been observed in cerebral apoplexy; but, in elderly persons, the frequent occurrence of slight blood extravasations in the conjunctiva and retina, are indicative of a strong tendency to cerebral apoplexy.

It is probable that it will be possible to diagnosticate by a thorough ophthalmoscopical examination, miliary aneurisms in the brain, as a simultaneous occurrence of such miliary aneurisms in the retina has been ascertained by post-mortem examinations.

The diseases occurring in the eyeball in simple meningitis and epidemic cerebro-spinal meningitis, are probably caused by direct continuation of the affection seated in the intracranial space. Schwalbe's researches, which have made known the communication between the lymph spaces of the eye, make a direct continuation of the disease easy to understand, and obviates the necessity of supposing metastastic processes.

Meningitis may, in rare instances, affect directly the retina and optic nerve, and be revealed ophthalmoscopically by symptoms of neuritis and retinitis. The cerebral disease may continue through the foramen opticus, between the outer and inner sheaths of the optic nerve, and thus meningitis will give rise to choroiditis, iridochoriditis, retinitis and hyalitis. Besides the optic nerve, the other cerebral nerves supplying the eye are affected simultaneously. The contraction of the pupils at the outset of the disease, must be looked upon as a sympton of irritation of the oculo motor nerves. In the later stages, paralysis of the muscles supplied by the oculo motor and abducent nerves occurs, thereby giving rise to ptosis, deviation of the visual axis, and pupillary paralysis. The complication of meningitis with inflammatory affections of the inner tunics of the eye, is not at all frequent, and is mostly observed in children before their fifth year.

Whilst these complications are based upon a continuation of the inflammatory process, through Schwalbe's lymph spaces, cases of purulent meningitis are on record, where the inflammation takes a different course, and spreading through the fissura orbitalis, caused chemotic swelling of the conjunctiva bulbi, without any inflammatory symptoms in that membrane; or caused considerable sero-purulent infiltration of orbital cellular tissue and exophthalmos—

symptoms which prove of great value in making the sometimes very difficult diagnosis of acute purulent meningitis.

Other symptoms of brain trouble can be observed in the eye, but as they are not of a specific character, it is impossible to judge, except in a very limited manner what specific cerebral affection exists, and even then, only by taking into consideration all other cerebral symptoms. On the other hand, certain general conditions which are common to different cerebral affections, manifest themselves by changes in the eye.

In this connection, mention must be made first of the increased intracranial pressure which characterizes itself in the eye, by the appearance of neuritis, neuro-retinitis, and by developed cases of "engorged papillæ." Since Schneller and von Graefe first, in the year 1860, directed attention to the complication of intracranial diseases, with inflammation of the optic nerve, the numerous works which have accumulated on this topic, show that cerebral tumors of most different texture—hydrops of the ventricles, echinococcus, abscesses, hemorrhage, softening of the brain, meningitis, cerebro-spinalis, tuberculose meningitis, diffuse encephalitis—may all lead to more or less serious changes in the papilla optica, retina, and blood vessels. Although these changes, taken alone, do not allow of a definite judgment with respect to the seat of the disease or the nature of the diseased process; yet, they may become of great significance in conjunction with other general and cerebral symptoms, and the course of the disease. The absence, however, of these changes, proves nothing against the existence of one or the other of these cerebral affections.

Neuro-retinitis, caused by cerebral affection, exhibits nothing peculiar. Redness of the papilla optica, and retinal opacity in its neighborhood, blurred outline of the optic disc, hyperæmia, and tortuous veins, prominence of the papilla, hemorrages in the retina, are the main features presented to us ophthalmoscopically. The principal type of these changes is represented by the "engorged papilla," so termed by von Graefe, who has rightly supposed that it was

caused by a prevented flowing off of the venous blood from the retina. His opinion, however, that a compression of the sinus cavernosus, was the means of preventing the flowing off of the blood from the vena ophthalmica into the sinus, has given place to a more correct explanation of the manner in which the stagnation of blood is accomplished. Schwalbe has recently shown, that the space between the outer and inner sheath enveloping the optic nerve, the subvaginal space, can be injected from the subdural space, and that the injected fluid penetrates close to the optic nerve head and beyond. The subvaginal space being gorged with blood (hydrops vaginæ optici), the optic nerve, and its blood vessels—especially its veins—are compressed, stagnation of blood in the retinal veins takes place, and a swelling of the papilla optica and the retinal parts next to it is caused—the result of which is engorged papilla. Experiments made by Manz, who injected defibrinated blood into the subdural space (between the dura mater and arachnoid of rabbits), pointed out the fact of the presence of engorged papillæ; they mostly occur simultaneously in both eyes, and indicate that an increased pressure takes place in the subdural space, which causes the arachnoidial liquid to enter the subvaginal sphere. Although the visual power may, in exceptional cases, remain remarkably good for some time, notwithstanding are revealed by the ophthalmoscope fully engorged papillæ, sight, as a general rule, becomes greatly impaired, and various defects in the visual field are always to be found. Post mortem examinations have proved that the swelling of the papilla optica is caused principally during the first stage, by thickening of the nerve fibers, and later by newly formed connective tissue, and œdematous infiltration.

The engorged papillæ are rarely developed rapidly—the process may continue for months; there may be no apparent change, but finally the result shows itself by white atrophy of the optic nerves and definite impairment of sight. Recovery is rare. The engorged papillæ is caused more particularly by such cerebral affections that have for a

long continuous period increased intracranial pressure, and therefore must be considered as a most valuable objective symptom indicative of the condition existing within the brain. Engorged papillæ is a very frequent and prominent symptom in cases of cerebral tumors, including large isolated cerebral tubercles. In twenty-three cases of engorged papillæ, Jackson found seventeen of tumors, three of abcesses, two of extravasations of blood, and one of softening of the brain. A few cases of engorged papillæ in hydrops ventriculorum, cerebro-spinal meningitis, and tuberculous meningitis, are also on record. It is an important fact that the best developed forms of engorged papillæ are principally met with in cases of cerebral tumors, whilst the less marked forms are found in other intracranial diseases, and bear more resemblance to ordinary neuritis. It is not possible to judge from the presence of the engorged papillæ the exact locality of the cerebral tumor as they may be found in various localities. Whilst then the most fully developed forms of engorged papilla must not be considered as arising from the continuation of the inflammatory process, yet some cases of neuritis, characterised by only slight swelling, may be due to a direct continuation of the inflammatory process from the brain and its enveloping membranes to the optic nerve. For the sake of a correct critical appreciation of the engorged papillæ, it is necessary finally to state that it is also found, but then only unilateral in some extracranial, intraorbital diseases, where there is no increased pressure in the cavum cranii as in orbital periostitis and in tumors in the orbital cavity. Although the engorged papillæ is one of the most frequent symptoms in cases of cerebral tumors, yet many cases of similar new formations occur in which the ophthalmoscope shows a normal condition of the background of the eye. In other cases again, may be found white atrophy of the papillæ optica, and at the same time may appear symptoms of increased intracranial pressure. Atrophy of the optic nerve may likewise be caused by syphilitic tumors. Occasionally,

though rarely, the ophthalmoscope will show the presence of albuminuric retinitis in cases of cerebral tumors.

Statistical data, compiled by Heinzel from sixty-three cases of children affected with meningitis tuberculosa basilaris, intracranial tumors, meningitis cerebro-spinalis, œdema meningum, sclerosis-cerebri, etc., indicate the relative frequency of changes in the optic nerve recognized with the ophthalmoscope in intracranial diseases generally. Out of sixty-three cases forty-seven were found with changes in the optic nerve and only sixteen without. By post mortems it was ascertained that out of thirty-seven cases of hydrocephalus only eight were found to have a normal background.

Neuro-retinitis developes itself sometimes only when the cerebral disease has progressed considerably. Both eyes are always affected. In thirty-eight cases of tubercular meningitis, Albutt saw twenty in which there were changes in the background of the eye. If ophthalmoscopical examination gives no clue as to the nature of the intracranial disease, an exact topographical examination of the visual field will serve nevertheless as an important guiding point with respect to the location of the cerebral affection. The value of these points however can only be fully realized when pathalogic-anatomic as well as physiological researches will have furnished a firmer and more extensive basis for more exact conclusions. The clinical symptoms found by examination of the visual field with the permieter show that only the two following cases occur:

1. In both visual fields the lateral halves are wanting, and the function extends only over both medial halves. The right eye, therefore, sees only objects situated to the left of the point of fixation; the left eye sees only objects situated to the right of the point of fixation—medial hemiopia.

2. Either the right halves are found wanting in both visual fields, whilst the two left halves are in function, or vice versa; or the two left halves are deficient, and the two right halves are present—homonyme hemiopia; but

it never occurs, that whilst one field of vision is entirely normal, that the inner or outer half alone is wanting in the second eye; nor does it occur that the two medial halves are wanting whilst the lateral ones are present.

These clinically ascertained defects in the visual field, are satisfactorily explained by the generally accepted theory of Newton and Muller, of the semi-decussation of the optic nerves in the chiasma opticum. Corresponding to this anatomical condition of the optic fibers, cases of medial hemiopia are slowly developed; without motor-paralytic symptoms, the disease is a slowly progressive one, having its seat in the anterior or posterior angle of the chiasma, often originating in the hypopysis cerebri, affecting first the middle part of the chiasma, then its lateral part, and finally, in all probability, destroying the whole chiasma. Cases of homonyme hemiopia, on the other hand, which occur likewise more frequently than in the first group, arise, in most cases, suddenly, exhibiting not rarely symptoms of cerebral apoplexy, unconsciousness, paresis of the upper extremities of the facial nerve. The disease is stationary, and does not spread to the half of the visual field which has remained healthy at first, and complete blindness does not ensue. The symptoms of homonyme hemiopia lead to the conclusion, that the cerebral disease is seated at some point in the course of the tractus opticus—between the central origin and the chiasma. Certain cases in which occur only partial defects, situated at corresponding points in the homonyme halves of the two fields of vision, must also be counted amongst hemiopic defects, and justify similar conclusions as to the locality of the disease in the brain.

Symptoms relating to the muscular apparatus of the eye, are met with in a great many cerebral diseases; they are mostly paralytic affections; spastic contractions or nystagmus are rare. The value which these symptoms possess, as indicative of the seat of the disease, will be considerably

increased when the cerebral course of the fibers of the oculo-motor nerves—trochlear, abducent, facial, and their connection with the motor and reflex centers—shall become more accurately known. The nucleus of these nerves is situated on the floor of the fourth ventricle. If motory disturbances appear simultaneously in the neigborhood of these nerves, the probability of disease in that part is great.

According to Adamunck's experiments made on dogs and cats, the corpora quadrigemini are of great significance for the associated movements. In those not rare cases, where the movements of both eyes, either to the right or to the left, are limited, the localization of the pathological process is in all probability in the anterior part of the corpora-quadrigemini. According to Prevost we find:

1. That in cases of apoplexy, both the eyes and the head rotate to one side.

2. If the seat of the affection is in the cerebral hemispheres, then both eyes and the head are directed to the side affected by the cerebral disease—this symptom frequently passes away in a few days.

3. If seated in the isthmus encephali, rotation may also take place towards the opposite side and last for a long time.

In partial cerebral sclerosis the eyes are almost the only organs in the higher sensory class that become affected. Atrophy of the optic nerve has been found in a few cases; but, for a diagnosis of cerebral affections, the condition of the eye muscles, which exhibit any stagmus-like trembling, is much more important—it is a symptom which rarely occurs in other cerebral affections following a similar chronic course. This nystagmus is a similar symptom, as the tremulousness in the extremities, which takes place as soon as they are moved, and is entirely wanting when they are in repose. This tremulous condition of the eyes, which is found in about half of all cases, must be considered as a paretic symptom; the more so, as distinct paralysis is met with in single eye muscles; also, ptosis, divergent position of the

eyes, mydriasis, even complete immovability of both globes. Post-mortem examinations have revealed degenerations in many distinct parts of the brain, and also sclerotic changes in the optic nerves, and in the nerves supplying the eye muscles. According to Charcot, diplopia—that is, paresis of the eye muscles—is, as it is in tabes, an initial symptom, and it generally disappears entirely. Amblyopia is a more persistent and frequent symptom of cerebro-spinal sclerosis, but only in exceptional cases does it lead to total blindness.

Circumscribed tumors seated at the base of the brain, or the basis cranii, or diffuse new formations, such as aneurisms, gummata, exostoses, tubercles, may occasion paralysis of the eye muscles. The diagnosis as to the seat and nature of the process, is one full of difficulties. As a general rule, it may be concluded that complete paralysis of the nerves is more likely to ensue when the disease is seated at the base of the brain; because then all the fibers which are densely thronged in the trunk of the nerve are affected. If successively a second or third nerve becomes totally paralysed, and simultaneously other symptoms indicating cerebral disease present themselves, the basal seat of the disease is yet more probable. Multiple incomplete paralytic conditions may, on the other hand, indicate disease of the brain itself, as the fibers of the nerves pass on here from one another, and they then may become more easily partially affected.

It is well known, that in about sixty per cent. of all cases of insanity an unequal size of the pupil exists. Bilateral mydriasis and bilateral myosis are of an equal significance as the unequal pupillary size in the insane. Although all these symptoms of paralysis may occur in the very varied forms and stages of insanity, yet the unequal size of the pupils is most frequently met with in paralysis of the insane. Out of one hundred and three cases of paralysis, Nasse found ninety-nine that exhibited changes in the pupils, including two cases in which no difference in size existed, but which showed a remarkable contraction of the pupils that were no larger than the head of a needle. These

pupillary symptoms have no prognostical significance with respect to the curability of insanity. This has of course no reference to cases of paralysis. All forms of insanity may take their course with or without disturbance in the mobility of the iris, but they are of more frequent occurrence, and show more stability in the chronic forms. In all forms of psychic affections, disturbances in the mobility of the iris may make their appearance. Both eyes are affected with equal frequency. The unequal size of the pupils may or may not disappear with the mental disease. Myosis occurs oftener in the stadium exaltationis; if acute mania is complicated with myosis, general paralysis, sooner or later, may be looked for with tolerable certainty.

The changes perceivable with the ophthalmoscope in the background of the eye, in psychic affections, are either simple white atrophy of the papilla optica, or different forms of neuritis—hyperæmia of the papilla, neuritis simplex, neuritis descendens, more or less engorged papilla, and complete or incomplete secondary atrophy of the papilla optica resulting from neuritis. Setting aside cases of general paralysis, where white atrophy is more particularly observed, no characteristic ophthalmoscopic appearance of any form of psychic disease exists. The ophthalmoscope may show in every form of mental disease a completely normal condition of the background of the eye; or it may be that every one of the retinal changes mentioned will occur. A few modifications of this statement must, however, result from the following data: Albutt has furnished the most ample statistics as to the symptoms to be observed with the ophthalmoscope in the insane. He states that in forty-three cases of epilepsy attended with insanity he found fifteen with marked changes in the optic nerve, such as white atrophy, which in some cases had arisen from neuritis —rarely distinct neuritis—but usually only increased redness of the optic disc with indistinct outlines.

In fifty-one cases of mania, Albutt observed in twenty-five a condition indicating intracranial disease. He found the optic disc anæmic during the attack of mania, probably

owing to spasm of the blood vessels. In all cases of mania, if the background of the eye was examined a few days after the attack, it was invariably found injected or reddish (consecutive paralytic dilation of the blood vessels). After grave attacks the optic disc appeared entirely hidden by the redness. The permanent changes exhibited were either stasis with consecutive atrophy or softening which passed over into simple atrophy or else showed a mixed character.

In thirty-eight cases of dementia, twenty-three exhibited diseases of the optic nerve (principally atrophy) or of the retina.

In cases of melancholia the retina showed very frequently an anæmic condition.

In twelve cases of idiocy, five were found with the optic nerves in a decidedly atrophied condition. Albutt gives no decided opinion as to whether or not this condition is owing to encephalic inflammation in childhood.

In paralysis of the insane, positive results are more frequently met with from ophthalmoscopical examinations than in any other form of disease. Out of fifty-three cases, forty-one were found with atrophy of the optic nerve in different stages. Albutt considers that although atrophy of the optic nerve is frequently met with in cases of paralysis, yet that it cannot be determined on with certainty at the commencement of the cerebral disease, and consequently that it lacks diagnostic value. The process is not one progressing from the center to the periphery, but one attacking the optic nerve independently of the central organ, and is often brought about by hyperæmia of the optic disc and slight exudation into the same. Atrophy of the optic nerve shows a decided connection with the size of the pupils, which are found to be contracted in the hyperæmic stage and dilated in the atrophic stage.

Forster's impression of Albutt's statistics is, that the numbers indicating affections of the optic nerve and retina is somewhat too high.

Of all the changes in the insane, observable with the ophthalmoscope, atrophy of the optic nerve is undoubtedly

the most frequent. Westphal and Leber have demonstrated that this atrophy of the optic nerve is histologically entirely similar to the gray degeneration of the spinal marrow. Amongst the diseases of the spinal marrow, tabes dorsalis, gray degeneration of the posterior cords of the spinal marrow, is often complicated with eye symptoms which have reference to the optic nerve, the eye muscles, and the iris. Amblyopia and amaurosis, mentioned by Romberg as a frequent accompanying symptom of tabes dorsalis, is caused by atrophy of the optic nerves. According to Leber's investigations, the pathologic anatomical changes in the optic nerve are analogous to those existent in the posterior cords of the spinal marrow. No positively correct opinion can be given at present as to the frequency of atrophy of the optic nerve in tabes. Whereas Niemeyer states that "the optic nerve was found atrophied in the rare instances of impairment of vision," Leyden considers amaurosis caused by atrophy of the optic nerve, as "not very rare." Oculists are generally disposed to consider atrophy of the optic nerve as a frequent symptom of tabes, because a relatively large number of cases of optic nerve atrophy occur in tabetic individuals. According to Leber, twenty-six per cent. of all cases of atrophy of the optic nerve were together with tabes or at least spinal symptons. Taking into consideration the fact that atrophy of the optic nerve precedes sometimes for years the ataxic symptoms of tabes, it is very likely that this percentage is rather too small. Forster remembers a number of cases where years passed after complete atrophy of the optic nerves had set in, before disease of the spinal marrow showed itself. According to Charcot, amaurosis may be the earliest, and for a long time the only symptom which afterwards, even ten years later, may be followed by pain and characteristic disturbances in the mobility. Amaurosis nearly always commences with a narrowing of the visual field, especially from the outward. These defects have the tendency of assuming the shape of a sector, the blind spot, never the point of fixation, forming the center of the cir-

cle. As the visual field goes on contracting from all sides, at last only one point will retain its power of function, which is always situated to the inside of the blind spot. Thus it happens that these patients are for a relatively long time able to read pretty well, even with quite white papillæ, and complain of decrease of vision only, when it is evident ophthalmoscopically that there exists an extreme narrowing of the visual field, and that signs of atrophy have set in. This condition of the visual fields makes it probable that the part of the retina between the optic disc and macula lutea, and the yellow spot itself, are supplied by those fibers of the optic nerve which lie next to its nerve axis; for according to Leber's microscopical examinations, these remain the most often free from degeneration. Another conclusion may be drawn from this, namely, that the process commences first in the trunk of the optic nerve, not in the optic tract, for in the latter case defects in identical parts of the field of vision would be observed which are always wanting. Charcot gives likewise a decided opinion respecting the progress of atrophy from the optic nerve to the tractus opticus up to the corpora geniculata. This agrees with the ascertained fact that atrophies commencing with central defects or with a central negative skotom, do not indicate tabes. Forster never succeeded in watching the gradual development characteristic of this last form of atrophy of the optic nerve in tabetic individuals. He always found in such cases distinct development of the atrophy, but the cold white color of the papilla optica, the scantiness and narrowness of the blood vessels, might become more fully developed at a later period. Although atrophy of the optic nerve nearly always affects both eyes, it may do so in a different degree, for whilst one eye may be entirely blind the functional power of the other eye may be only partially affected.

It is worthy of mention, that among the characteristic subjective symptoms found in tabetic atrophy, although not belonging exclusively to it, is to be noticed an insensibility of sight to certain colors, especially red and green,

occurring in the later stages of the disease. Another symptom which is characteristic of every form of atrophy of the optic nerve, is a sensitiveness to bright light; the patient's sight is much improved in a dim light.

It has hitherto been impossible to prove anatomically a continuity between atrophy of the optic nerve, caused by gray degeneration, and the gray degeneration of the cords of the spinal marrow. It is therefore probable that we have not to deal here with a process appearing in one place, and then spreading in a centripetal or centrifugal direction, but that the same histological changes become simultaneously or successively developed in those different parts of the nervous system which show for it a peculiar disposition. A cure, or even a lasting improvement in the visual power in this disease, never occurs, and it is extremely rare that there should be even the pause of one or two years in its progress—for *this* atrophy is always progressive, and leads to amaurosis—a temporary improvement in the central acuteness of sight is sometimes observed. These patients, with few exceptions, are greatly inclined to believe that their sight is improving; influenced by this self-deception and free from anxiety, they bear their fate with cheerfulness, and seldom inquire if they are likely to become blind. In this respect they offer a great contrast to glaucomatous patients, who suffer much from the constant dread of losing their sight.

Sometimes, especially at the commencement of tabes, paretic affections of the nerves supplying the eye muscles are met with. The paresis is often of a mild and passing type, but relapses often occur, and the same or other muscles may become affected. In a few instances, a more extensive and continuous paralysis may take place, affecting even several muscles. Disease of the spinal marrow cannot be considered, as is the case in amaurosis tabetica, the cause of these paralytic affections. We can but suppose that they are caused by an affection of the bundles of nerve fibers supplying the muscles of the eye, which take their origin in the floor of the fourth ventricle. Changes in the

pupils are very frequently observed in tabes. Both pupils are generally smaller than normal; they are of unequal size and react but slightly from light, and are more readily movable when accommodation for near distances takes place. An affection of the centrum-cileo spinale—in the region of the upper thoraic and lowest cervical vertebra—would explain this. Moderately dilated, motionless pupils are also observed. In these cases, as in paresis of certain eye muscles, an affection of the oculo-motor nerve must serve as explanatory cause. Cyon is of opinion that affections of the eye commonly accompany tabes. Out of two hundred and three cases he found one hundred and five with eye affections, viz:

Amblyopic affections	33
Paralysis of eye muscles	30
Mydriasis	3
Contraction of pupils	9
	75
Amaurosis, with affection of eye muscles	16
Amaurosis, with mydriasis	8
Amaurosis, with contracted pupil	1
Affections of eye muscles, with mydriasis	4
	29

Out of twenty-eight cases of tabes, he observed only two cases of enlarged pupils.

Lesions of the spinal marrow may cause changes in the pupil and retina. The fact, ascertained by Argyll Robertson, that in cases of chronic affections of the spinal marrow, the narrowed pupils do not contract from light, but contract when an effort at accommodation is made, exists also, according to Knapp, in cases of lesions of the spinal marrow. Albutt found changes in the retina in connection with lesions of the spinal marrow, such as increased redness of the papilla optica, indistinctness of its outline, distended and tortuous veins, but no true neuritis. There is rather a tendency to recovery, than to the formation of atrophy. Alteration in sight may be very considerable, and it may be very small. The higher the seat of the lesion of the spinal marrow, the sooner are the disturbances in the eye developed.

Albutt considers that a secondary subacute meningitis at the basis cranii, often found in post mortem examinations, is the cause of this, and opposes the hypothesis of Wharton Jones, who concludes that the retinal disease arises from an affection of the sympathetic nerve, more especially from paralysis of the vaso-motor nerves. The condition of the pupils is of great diagnostic value in diseases of the cervical part of the sympathetic nerve. Many cases are known where sarcomatous tumors of the neck, cancerous tumors, and cicatrices on the neck compressing the sympathetic nerve, have caused contraction of the pupil on the corresponding side. On the other hand, a dilatation of the pupil has been observed, owing to irritation of the sympathetic nerve consequent upon struma or inflammatory tumors. A case has been published (Czermak) where a dilatation of the pupil could be produced by pressing with the finger on the neck tumor.

Of all the symptoms which refer to the sympathetic nerves, myosis is the most frequent and lasting, whilst vasomotoric disturbances only at times make their appearance, and are variable under certain conditions. Lesions of the cervical part of the sympathetic nerve and of the spinal marrow, caused by projectiles or punctured wounds, will occasion pupillary contraction of the corresponding side.

The narrowed pupil, which ensues from paralysis of the sympathetic nerve, contracts little from light, and in the dark dilates less than the normal pupil, so that the difference in the size of both pupils in very weak light is still more striking, especially in the young. The pupil dilates on the application of atropia, but not to the same extent as the pupil on the healthy side, and the shape of the pupil will sometimes in these cases show a deviation from a regular circle.

Paralysis of the cervical part of the sympathetic nerve will produce several other changes in the eye; but generally only after the fundamental disease has lasted for some time. Horner was the first who thoroughly analyzed those symptoms. In 1869, he drew attention to the coincidence

of simultaneously existing light ptosis and contracted pupil, a symptom observed by many before, but never commented upon, and which he considered the result of a disease of the sympathetic nerve. On the upper, as well as on the lower lid, from the posterior edges of the tarsi, arise smooth muscular fibers, which take their course posteriorly right under the conjunctiva. These smooth muscular fibers are under the influence of the sympathetic nerve, and dilate the palpebral aperture. This has been proved by experiments made by Wagner and Miller on the bodies of decapitated individuals, whose sympathetic nerve they excited. Paralysis of the sympathicus must therefore produce a narrowing of the palpebral aperture owing to the sinking down of the upper lid and the rising up of the lower one. This ptosis, however, never reaches the extent of entirely covering the pupil. The vaso-motoric disturbances are also generally present in their first or second stage.

During the first stage, the well known symptoms of paralysis of the sympathetic nerve show themselves by a raised temperature, increased secretion of sweat, and great redness. The symptoms in the secondary stage are those which depend on atrophy of tissue. The side on which is the paralyzed nerve becomes pale in color, of a low temperature, and there is no perspiration. These symptoms remain unchanged during both stages. A diminished tension of the eyeball has often, although not constantly, been noticed in cases of paralysis of the sympathetic nerve. There exists no satisfactory explanation of this symptom, which may be experimentally produced by cutting through the sympathetic nerve. In cases of paralysis of the sympathicus, of long duration, a sinking back of the eyeball into the orbit has been observed; this is in great measure due to a gradual development of atrophy of the orbital cellular tissue. In opposition to this paralysis of the sympathicus, Brunner has given an account of a case where there was a continued irritation of the sympathetic nerve, and where the left palpebral aperture was larger, and the reac-

tion sluggish. The left side of the face of this paralytic patient became pale, lean and dry.

Of late, hemicrania has been considered as a vaso-motoric neurosis—resp. as a disease of the sympathetic nerve. This is due to DuBois Reymond, whose attention was first drawn to a cord-like contraction of the temporal artery, and to a dilatation of the pupil on the same side during his attacks of migraine. This form of migraine which he proposed to term hemicrania sympathico-tonica, would thus seem to be a spasm of the blood vessels, or at least to be accompanied by one. But in many cases there is neither a cord-like contraction of the blood vessels, nor dilatation of the pupil, present. On the other hand Möllendorf observed in a patient, during a painful attack of hemicrania, in addition to the known increased injection of the episderal blood vessels, an increased brighter redness of the background and stronger injection of the arteria and vena centralis retinæ, as compared with the healthy side. He considers this condition as an argument in favor of the theory which accounts for the development of migraine as a one-sided anenergia of the vaso-motoric nerves supplying the carotid arteries, which causes a relaxation of these respective arteries and through a one-sided cerebral fluxion to the cerebrum major. Möllendorf makes no statement concerning the condition of the pupil. This form of migraine would therefore, in opposition to the one observed by DuBois Raymond, be caused by paralysis of the blood vessels and be termed hemicrania angio-paralytica of the sympathicus. The papillary symptom which is wanting in Möllendorf's case has been mentioned by a later author, who found distinct contraction of the pupil of the eye on the affected side of the head. The difference in the width of the pupils during the attacks fluctuated between 1–2 min.

The eye sometimes becomes the seat of certain diseases which are, undoubtedly, dependent on an affection of the trigeminal nerves. It is not, however, finally ascertained whether the cause is to be looked for in the disease of the

true trigeminal fibers or of the sympathetic fibers which accompany them to the eye. These diseases are ophthalmia neuro-paralytica and herpes-zoster ophthalmicus.

The rapid destruction of the corneal tissue often observed in very weak children suffering from profuse diarrhœa, and in rarer instances, also in typhus, is regarded by some authors as a consequence of paralysis of the nerves supplying the blood vessels. VonGrafe likewise considered the corneal ulceration in morbus Basedowii as an neuro-paralytic process, in which the tropic trigeminus fibers, not the sensitive ones, are affected.

Entirely different from these inflammatory forms is the keratitis, which is sometimes met with in complete anæsthesia of the trigeminal nerves. This last form of inflammation seems to be caused by an accidental superficial corneal necrosis of traumatic origin, which occurs more easily when the bulb and its surrounding parts have become insensible. This keratitis, caused by paralysis of the trigeminal nerves, has a destructive character. Protection of the diseased eye from fresh damaging influences, will, however, often cause a cure of the corneal inflammation. A final and full solution of this question has not yet been achieved.

A post-mortem examination made by Wyss, in a most important case of herpes-zoster ophthalmicus, proves conclusively that this disease is dependent on an affection of the Gasserian ganglion, and the trophic-trigeminal fibers proceeding from the same. The microscopic changes in the Gasserian ganglion have all the characteristics of acute inflammation. Additional clinical symptoms, which indicate an affection of the sympathetic fibers arising from the Gasserian ganglion, and are observed in herpes-zoster ophthalmicus, must be mentioned. They are an increase in the temperature of the diseased side, and an enormous decrease in the intraocular tension. Slight cases of chorea-minor are sometimes ushered in by frequent short but strong convulsions of the musc—orbicularis palpebrarum-spasmus nictitans. It seems worthy of mention, that the

blinking always takes place synchronically in both eyes; whereas, the twitchings of the nostril, corner of the mouth, arm—are only one sided, and do not occur simultaneously in corresponding parts.

Slight hemorrhages under the ocular conjunctiva are sometimes observed in consequence of venous stagnations, brought on by an epileptic fit. At the beginning of the fit, the pupils become, in some cases, enlarged; the countenance, at the same time, turning pale. These symptoms are caused by irritation of the cervical parts of the sympathicus, occasioning contraction of the facial arteries, as well as contraction of the dilatator pupillæ. Ophthalmoscopic examinations have been made of a great number of epileptic patients. During the fit it is seldom possible to examine the background of the eye in a satisfactory manner. It has, however, been possible immediately after the spasm has ceased. Most examinations, however, have been made sometime after the fit had ceased. In epileptic patients have been found sometimes intensely developed engorged papillæ, in all stages, up to total atrophy of the optic nerve disc. From this condition may it be safely concluded that the contents of the cranium have undergone a pretty extensive anatomical change, and that the intracranial space has become narrowed—quite sufficient causes for development of engorged papillæ on the one side, and for the epileptic fit on the other. Considerable impairment of sight, even total amaurosis, is the rule in these cases. Ophthalmoscopic examination is therefore of some importance with respect to the recognition of the cause in each single case, and as regards the prognosis. On the whole, however, well developed cases of engorged papillæ do not seem to occur often in epileptic patients, and no mention is made of this symptom by medical writers. It is necessary, however, to bear in mind, that it is Albutt alone who includes such cases under the term of epilepsy, in which unconsciousness and characteristic convulsions do not depend upon obvious disease of the encephalon. According to the author, simple epilepsy, without organic disease, is generally unaccom-

panied by disease of the optic nerve; although he has sometimes observed changes in the blood vessels and retina. Out of forty-three cases of idiocy with epilepsy, he found fifteen with changes in the optic disc or retina. Albutt inclines to the opinion that during the fit, and for hours, perhaps days afterwards, the papilla optica has an anæmic appearance. Hughlings Jackson found the papilla optica also whiter during the fit than during the normal condition; the veins were distended and darker. Tebaldi observed in sixteen cases out of twenty of epilepsy, great hyperæmia of the retinal veins, considerable tortuousness and varices of the same, and great contraction of the retinal arteries. With respect to the retinal changes in epileptic patients, the following remarks may also be made:

In cases of symptomatic epilepsy, the condition of the background of the eye, observed with the ophthalmoscope, is found to be dependent on the fundamental intracranial disease; in idiopathic epilepsy, a contraction of the retinal arteries takes place during the fit, a dilatation of the retinal veins and venous hyperæmia developes itself at the same time, owing to venous stagnation during the fit.

SECTION VI.—ON THE RELATIONS EXISTING BETWEEN DISEASES OF THE SKIN AND DISEASES OF THE EYE.

As the exanthema, in acute exanthematous diseases, is only a symptom, the eye affections belonging to that group will be mentioned in Section VIII. Lepra affections belong still less than exanthematous diseases to that group, and will be mentioned in Section IX. The herpes-zoster ophthalmicus has already been described in Section V. The superficial forms, dermatitis, eczema, impetigo, psoriasis, stand mostly in relation to the outer integuments of the bulb, conjunctiva and cornea. In all extended cases of eczema and impetigo, a conjunctival catarrh is observed, particularly if these affections occupy the facial integuments of scrofulous children. Catarrhs of the conjunctiva are then quite severe, the conjunctival folds become greatly

swollen, and a copious, serous, or even muco-purulent discharge takes place, but never a purulent one, as in gonorrhæal infection. The inexperienced suffer great alarm from the sore and swollen lids which sometimes will remain closed for months; their apprehension, fortunately, is nearly always unfounded, for, as a rule, besides the catarrh, there is only a keratitis superficialis present. The muco-purulent character of these catarrhal affections is caused by the continuous passing over of the purulent secretion from the humid integuments of the lids to the conjunctival surface. This infection undoubtedly increases the catarrh.

In cases of eczema universale, even though the immediate surroundings of the eye have remained intact in adults, a conjunctival catarrh is scarcely ever wanting. The same remark applies to extended cases of psoriasis. These catarrhs of the conjunctiva discharge as soon as the skin disease vanishes; they may be alleviated by astringent remedies, but not cured as long as the disease lasts. On the other hand, conjunctival inflammation, caused by a sort of indiosyncrasy against atropia existing in some individuals, may spread to the skin, for in such cases the integument of the lid becomes œdematous, of a brownish red color, with rough surface, and completely resembles the parts of the integuments in the introductory stages of eczema. It is quite probable that chronic skin diseases, superinducing a marastic state of the whole body, may be productive of cataract. Quite as unique must be considered the cases mentioned by Wrecker and Cooper, who observed the development of pemphigus pustules in the conjunctiva of persons suffering from chronic pemphigus. Developments of pemphigus on the conjunctiva caused in both cases extensive adhesions of the bulb and eyelids.

There are few cases on record in medical literature of erysipelas facial causing blindness, through atrophy of the retina and optic nerve. A remarkable feature is the rapidity with which blindness develops itself. The probable cause in these cases is not so much compression of the

optic nerve by the orbital cellular tissue which takes part in the process, as by a direct continuation of the inflammatory process along the sheaths of the blood-vessels up to the central artery of the retina. Erysipelas may, moreover, lead to the formation of abscesses in the eyelids and their gangrenous destruction, thus causing lagopthalmos and extended ectropion with subsequent exulceration of the cornea.

SECTION VII.—ON THE RELATIONS EXISTING BETWEEN RHEUMATISM AND GOUT WITH DISEASES OF THE EYE.

Whilst modern ophthalmology, owing to the general darkness still existing regarding rheumatism, shows great reluctance to adopt rheumatism as an etiological principle, there certainly exists affections of the eye, which as they are produced by a cold, may be called rheumatic. We can therefore only refer to the relations existing between diseases of the eye and rheumatism, if it can be proved that these diseases are not idiopathic, but are the result of a direct effect of the cause—the cold—upon the eye itself, and that they are the expression of the rheumatic diathesis of the whole body, or that they stand in some connection with the rheumatism of the whole body

The question is, do such diseases of the eye exist? Forster has no doubt that inflammations of the iris as well as of the cornea, stand in distinct connection with diseases of the joints of a rheumatic character.

Whilst Hutchinson regards cases of iritis which show a decided connection with inflammation of the joints, due to gonorrhæal arthritis as belonging to this group of rheumatic affections of the eye, Forster refers to them as belonging to Section IV, in which the relations existing between diseases of the eye and the genital sphere are mentioned.

Putting aside, however, the cases of iritis connected with this gonorrhæal arthritis, there are undoubtedly cases in

which inflammatory process in the joints occur in connection with iritis, which have a decidedly atmospheric origin, and must consequently be designated as truly rheumatic. Hutchinson has observed many cases of this kind. The febrile polyarthritis acuta is but very rarely complicated with inflammation of the uveal tractus. Acute rheumatism of the joints may also occur with paralysis of the eye muscles; there is, however, only one case of this kind on record. It is still undecided whether the inflammation of the cornea, known as keratitis interstitialis diffusa, stands in causal connection with inflammatory processes in the joints and chronic periostitis—(Forster), or whether the corneal disease is caused by hereditary syphilis—(Hutchinson).

As to the connection of eye diseases with gout, much less can be said respecting the connection between rheumatism and eye diseases. If gonorrhæal arthritis be excluded, and the trouble not confounded with rheumatism, then eye affections depending on acute or chronic gout, probably never occur. Forster knows nothing from his own experience on this subject, and the many cases published by Hutchinson refer probably to gonorrhæal arthritis and rheumatism, not to podagra and chronic gout which develop from it. Cases of ophthalmia arthritica mentioned in former medical books, are cases of blennorrhœa, iritis and inflammatory glaucoma, but have nothing to do with true gout.

SECTION VIII.—ON THE RELATIONS EXISTING BETWEEN ACUTE AND CHRONIC INFECTIOUS DISEASES AND DISEASES OF THE EYE.

Measles.—Conjunctival catarrh is an essential symptom in measles. The catarrhal affection of the whole respiratory tract, with which the disease commences, always spreads to the conjunctiva, and is easily observable. Conjunctival catarrh in measles is usually well developed. The palpebral conjunctiva is very red, discharging considerably. The ocular conjunctiva is often much injected up to the cornea;

there is a very disagreeable feeling of pressure in the eyes, which lasts sometimes for days, and is usually attended with marked photophobia. Adler considers the symptoms relative to the conjunctival catarrh, so striking and recurrent, that they would be of use in the differential diagnosis between measles and variola previous to distinct formation of the exanthem. The catarrhal inflammation, which often reaches its greatest intensity on the second day of the exanthem, leads rarely to epithelial abrasions of the cornea. These never form marginal ulcers on the cornea. The conjunctival trouble occasionally assumes a more chronic form. Now and then an eye may be lost by diphtheritis, ulcerative keratitis, or keratomalacia after measles. These cases are exceedingly rare. A change affecting the whole constitution is frequently produced by measles ; and during some subsequent months there is a continual recurrence of catarrhal affection of the eyes, also phlyctenular conjunctivitis, keratitis vasculosa, superficial circumscribed keratitis and blepharitis ciliaris affections, which are generally referred to the development of scrofulosis after measles.

In order to avoid unnecessary repetition, it may be mentioned here that all these *after diseases* of the eye are likewise observed after scarlatina and variola, also after vaccination. Although far from finding in the last fact an argument against vaccination, Forster thinks it quite a settled matter, that the above-named conjunctival and corneal affections often show themselves after vaccination in individuals, who previous to it had never been affected by them. With the exception of the outer integuments, other parts of the eye are rarely affected in measles. There are, though, a few cases on record where amaurosis of a temporary, as well as of a permanent character, have been observed after measles ; these were mostly caused by neuritis optica. Nothing positive can be stated as to the cause of these cases of amaurosis, only, it is all but certain, that they can have no close relationship to the poison which causes measles, judging from the very great rarity of these last

eye affections, even during a greatly extended epidemic of measles in large cities.

Scarlatina.—As in other acute exanthematous diseases, conjunctival catarrh is met with in scarlatina—more especially during the eruptive stage, although the conjunctival affection is not as constant nor as persistent as in measles or variola. The amblyopia and amaurosis observed sometimes in connection with scarlatina, stand in the closest connection with an affection of the kidneys dependent upon the scarlatinous process.

The cases observed, all show the presence of a considerable degree of albuminuria. It is likewise noticed that amaurosis shows itself first during the period of desquamation, when the patient has been feeling well for some time. Cerebral symptoms, violent headache, convulsions, vomiting, torpor generally precede blindness, which is quickly developed, is absolute at least for a time, and affects both eyes. Ophthalmoscopical examination has always yielded a negative result; the impairment of sight passes off entirely in time. There can be no doubt that these cases must be considered as cases of uræmic amaurosis. The occurrence of this amaurosis is very rare, considering the frequency of scarlatina and of croupy nephritis. The same remark applies to the occurrence of retinitis albuminurica after scarlatina, and is seen more frequently in the chronic form of Bright's disease. The prognosis in retinitis albuminurica caused by scarlatina, and in fact by all acute exanthematous diseases, is better than in cases otherwise originating; although sometimes, secondary atrophy of the optic nerve may have become developed. Accommodative asthenopia is occasionally met with after scarlatina, as well as after measles. Children experience disagreeable sensations in the eyes—a feeling of pressure, of stinging and tension whenever they read or write for any length of time, especially in the evening. These sensations are not felt unless the eyes are used. The range of accommodation need not necessarily be diminished. The children thus affected are always

hypermetropic, sometimes, however, only slightly. Suitable convex glasses afford relief.

Variola.—Affections of the eye occurring whilst the variola exanthemata lasts, or even after its disappearance, though still having direct connection with the variola process, are very frequent. In no other general disease are eye affections so often observed as in variola. Nearly all parts of the eye may suffer; the lids and lashes, the lid cartilage, the lachrymal sac, conjunctiva, cornea, iris choroidea, even the retina and the eye muscles may participate in the disease; vision is therefore often endangered by smallpox; and previous to Jenner's discovery, this was so often the case, that, according to Andreal, probably as many eyes were lost through variola as from all the inflammatory processes of the eye taken together. Dumont states, that before Jenner's discovery, thirty-five out of one hundred cases of blindness were caused by variola. He found even in the year 1856, that seven per cent of all cases of blindness in France, including old and young, were caused by that disease. The percentage was undoubtedly much less, at the same period, in Germany, owing to the law of compulsory vaccination existing in many German States.

It is the conjunctiva which very frequently is first affected, though not seriously. Conjunctival hyperæmia is nearly always present, especially if the lids have been invaded by the exanthem. In cases of pure hyperæmia there is no increase in the secretion, nor strong injection of the ocular conjunctiva. In other cases, conjunctival catarrh is present. Its intensity is not always dependent upon a considerable pustular eruption over the body, or more particularly on the face. This remark is also applicable to the majority of other variolous affections of the eye, to be mentioned hereafter. But if the exanthem is found on the intermarginal part of the lids, or on the ocular conjunctiva, then a considerable catarrhal injection, with swelling and secretion of the conjunctiva, caused by contact with the variolous pus, becomes developed. These symptoms are sometimes so severe that this conjunctivitis may be mistaken for blen-

norrhœa, especially if chemosis of the ocular conjunctiva is present. But this variolous blennorrhœa shows unmistakable points of difference to the blennorrhœa caused by gonorrhæal infection. The swelling of the palpebral conjunctiva is neither as great nor as continuous, nor are the granulations as severe, nor is the cornea in as much danger in these cases as in gonorrhæal blennorrhœa; we may therefore safely consider this conjunctival trouble a severe catarrh, as it is often met with in children, especially those of a scrofulous constitution.

In well developed cases of this catarrh, ecchymosis under the conjunctival bulb may occur. In hæmorrhagic variola there is from the very commencement considerable redness in the corners of the eyes, occasioned by ecchymosis and extravasations in the ocular conjunctiva, which increase to such an extent that part of the cornea, and even the pupil, may be covered by chemosis. Well developed ecchymosis of the conjunctiva may certainly be considered as characteristic of hæmorrhagic variola. The integument of the eyelids and the face in general is a favorite locality for the variolous eruption. Ecchymosis in the integument of the lids is rarely absent in hæmorrhagic variola. The extensive eruption of pustules on the lids causes them to swell greatly, preventing the eyes for some days from opening. Blennorrhagic catarrh of the conjunctiva is usually well developed in these cases, and is at times complicated with a corneal affection. On the margins of the lids will often be seen small diphtheritic ulcerations, which leave behind, after protracted cicatrisation, an uneven appearance, a rounding off of the margins of the lids, loss or oblique position of the lashes, obliteration of the excretory ducts of the meibomian glands and secondary changes—concretions in the glands. Abscesses and furuncles may also be found in the eyelid. The ocular conjunctiva is likewise, as is the case with other mucous membranes, occasionally the seat of true variola pustules; these latter exhibit a different appearance from cutaneous pustules; they are mostly smaller, sometimes only as large as a pin's head; they are

surrounded by considerable injection, and very soon lose their epithelial covering; the round yellowish white spots remain, and resemble the phlyctenular pustules commonly seen in the conjunctiva of scrofulous children. These pustules are generally few in number, about two or three, and are usually found on the ocular conjunctiva—seldom on the conjunctiva of the lids or plica semilunaris, caruncalæ lachrymalis, and never in the depth of the transition part of the conjunctiva. These pustules are always combined with symptoms of conjunctival catarrh. They occupy more particularly the limbus conjunctivalis and may become dangerous by spreading to the cornea and causing ulcers there later. True variola pustules do not occur on the cornea, but ulcerative corneal affections may become developed, induced by conjunctival affection, or they may be independent of the same; they make their appearance at the commencement of the stadium exsiccationis, which, according to Adler, this is never before the twelfth day.

Amongst the corneal affections must be mentioned keratitis circumscripta superficialis, abscess of the cornea, ulcers which may lead to perforation of the cornea and prolapsus of the iris, with remaining synechias, and may even cause purulent destruction of the whole of the cornea and perhaps the panopthalmitis; these ulcers may, however, heal at any stage, although they are of an obstinate character. Extensive ulcerative processes of the cornea are often connected with dangerous complications of other organs. Keratomalacia indicates collapse and a fatal end. The uveal tract, iris and choroidea, do not become as frequently affected as the cornea. Affections of the uveal tract do not begin before the twelfth day after the commencement of the variola, and they exhibit some peculiar features. Plastic iritis is rare; affection of the iris in variola shows a more serious character. It is often connected with choroiditis, leads consequently to the formation of opacities in the vitreous, and takes a slow course. Out of 1,187 variolous patients, Neumaun did not see a single case of primary iritis. Iritis always makes its appearance when

the other after diseases of variola, such as abscesses, furuncles, etc., have developed themselves. Hirschberg has named this iritis, "iritis postvariolosa," owing to its regularly late advent.

The so called ciliary irritation, which is often found in variola and is characterized by photophobia, lachrymation, and pinkish pericorneal injection, may precede affection of the cornea or iris, but it may exist without being followed by these diseases. Simple ciliary irritation, as well as iritis, are more particularly met with in light cases of variola. Consequent upon affections of the choroid and vitreous, posterior polar and cortical opacities in the lens have been noticed, also glaucomatous inflammation during variola, and cases of neuro-retinitis diffusa and nephritica after variola.

It has been long known that chronic blennorrhœa of the lachrymal sac often occurs after variola. During the last stage of variola inflammation of the lachrymal sac has been observed. There can be no doubt that the exanthem is met with in the lining of the mucous membrane of the lachrymal apparatus, as well as in the mucous membrane of the nose and pharynx.

Typhus.—Eye affections are rare in typhus, and are limited to isolated cases of corneal abscesses or ulcers, to paresis of accommodation of the sphincter pupillæ and eye muscles, and to transitory cases of amaurosis and atrophy of the optic nerve. The few cases of transitory amaurosis known, however, have all occurred in children. It cannot well be denied that some other anatomical changes besides the one observed in scarlatina are at the bottom of these cases of transitory blindness, although in both instances the same part of the brain may be affected. The passing œdematous infiltrations in the brain, which might explain amaurosis in scarlatina, cannot be supposed to cause the same condition in typhus. Although cases of lasting amaurosis during typhus, leading to complete atrophy of the optic nerve, have often been observed, yet no case has been watched from the beginning to the end. Nearly all clinical symptoms and post-mortem examinations are wanting,

it is therefore impossible to arrive at a safe conclusion as to the cause of the atrophy and its primary localization.

Febris Recurrens.—After the disappearance of febris recurrens a disease of the choroideal tract is sometimes observed, which may exhibit very different clinical symptoms. In by far the greatest number of cases the appearance of opacities in the vitreous body and a corresponding decrease of the visual power, are the first symptoms. These symptoms are sometimes the only ones, but much oftener other symptoms are observed which indicate inflammatory disease of the choroidal tract—for instance, peri-corneal injection which may develop itself into inflammatory chemosis, inflammatory changes in the iris, posterior synechias, slight hypopion, decrease in the intraocular tension, sensitiveness of the anterior part of the bulb and ciliary neurosis. The inflammation appears to be nearly always confined to the front part of the choroid and iris. There are no choroideal changes noticeable ophthalmoscopically. Two symptoms, heretofore not referred to extensively, deserve special mention, viz : first, paresis of accommodation found in the early commencement of choroideal trouble, the iris being intact in several cases; and secondly, the alternating size of the pupils found by Peltzer in convalescents from febris recurrens. The course of this disease is always chronic; it lasts for weeks and months; and opacities of the vitreous may remain for a very long time. Posterior polar cataract, changes in the peripheric part of the choroid, occlusion of the pupil and retinal detachment in rare instances have also been observed. Most of these cases occur between the ages of twenty and thirty years. No satisfactory explanation respecting the connection between this general disease and the eye has yet been given.

Diphtheritis.—It is well known, that after the diphtheritic affection has run its course, muscular paralysis in different parts of the body is sometimes observed. Beside the velum palati, in the upper and lower extremities of the trunks, the bladder and rectum, it has also shown itself in the

external eye muscles—more particularly in the apparatus of accommodation.

The paretic affections of the accommodative apparatus were formerly mistaken for amblyopic affections, until Donders demonstrated that impairment of vision could be corrected by proper convex glasses, and that its causation should be looked for in the apparatus of accommodation, and not in the optic nerve. In most instances no discoveries are made, either by external or ophthalmoscopic examination. Sometimes the pupil is found enlarged, owing to paralysis of the sphincter papillæ sometimes combined with paresis of the accommodative apparatus. The diphtheritic paresis of accommodation appears to be nearly always bilateral, although the range of accommodation is not always evenly diminished on both sides. A further peculiarity is the increase of the hypermetropic refraction of the eye during this diphtheritic paresis. Schweiger is of opinion that this arises from an increased flatness of the curved surface of the lens, which, during a paresis of accommodation, lasting for a long period of time, is more considerable than during atropia paralysis, which lasts generally a short time. Visual power is at times somewhat diminished during the paresis of accommodation; it regains its normal condition after the disappearance of the paralysis. This fact probably bears no relationship to the optic nerve, but Volkers thinks that it is possibly caused by an astigmatism of the lens whilst developing itself during the long lasting paralysis of the ciliary muscle, and that it disappears as soon as the tension of the muscle of accommodation returns.

The disturbance of the accommodation during diphtheria takes place within a short time—a few days or hours; it rarely amounts to full paralysis; it may last for weeks or months, and disappear gradually. Suitable therapeutic measures have a decided influence on a rapid disappearance of the paretic condition.

By far the greatest number of cases of paresis of accommodation, show themselves from four to six weeks after the commencement of diphtheritis, and from two to three

weeks after the disease has run down, and is mostly met in young persons. Although there are no satisfactory statistics with respect to the relative frequency of diphtheritic paralytic affections in particular, still, it is certain that paresis of accommodation is one of the most frequent paralytic symptoms occurring during diphtheritis; but paresis of the velum palati, which often appears together with paresis of accommodation, is somewhat more frequent.

Paresis of accommodation shows itself not only after severe cases of diphtheritis, but it may appear after the slightest diphtheritic angina, and in diphtheritis of other parts of the body. These cases refer to diphtheritis of wounds, of the auricle, external earduct, vagina, and diphtheritic infiltration of the salivary glands; diphtheritic inflammation of the throat was wanting in those cases, but paralysis of the lower extremities, velum palati, and impaired sight, were mentioned.

Besides paresis of accommodation, paresis of the motor muscles of the bulb has often been observed, though it is rarer. These paretic affections appear suddenly, disappear, change; leaving sometimes behind them a slight insufficiency of the internus or muscular asthenopia.

Muscular paresis appear also after other acute diseases, such as variola and abdominal typhus. They are in a twofold manner distinguished from the paretic affections occuring after diphtheritis. They nearly always appear after the local disease has run its course, and the general condition of the patient has improved, or they may occur after a very trifling local or general affection. Muscular paralysis in variola or typhus, on the other hand, develops itself before the disease has entirely passed away, during convalescence, and it only occurs after a severe form of the primary disease.

Febris Intermittens.—Taking into consideration the fact that protracted, pernicious, malarial affections may produce the most serious disturbances in the system, it is somewhat surprising that only a few cases of derangement in the organs of vision have been recorded. In these cases amblyopia,

which revealed no ophthalmoscopic symptoms, disappeared under proper general treatment.

Cholera—In this disease, symptomatic changes in the eye are observed in the lids and the cellular tissue of the orbit, in the secretion of tears, in the conjunctiva, sclerotic, cornea, pupil, choroid, and in the retinal blood-vessels. The early cyanotic appearance of the lids is generally very distinctly observed. The lids cannot close properly, owing to the retraction of the posterior margin of the cartilage of the lids towards the orbit, and a diminished power of the orbicular muscle. The eyeball rolls so far upward that the cornea is entirely hidden from view.

The secretion of tears is much reduced in the conjunctiva and in the lachrymal gland. Patients suffering from cholera do not shed tears, not even during the most painful spasms. The ocular conjunctiva is in all serious cases injected in the lower half, and there is imperfect closure of the lids. The injection affects that part of the bulb which remains uncovered by the lids. The same part of the ocular conjunctiva lacks moisture on its surface. This deficiency is caused by inability of the lids to close, and thus secretion is impeded. Joseph has observed ecchymosis on the lower part of the ocular conjunctiva of a very dark color, and of bad prognostical significance. In severe cases a partial necrosis of the cornea is observed during the stadium algidum, a segment of the cornea, one-half to three-fourths of one line becomes dry and brown, is eliminated after one to two days, leaving behind an ulcer which may enlarge.

In the sclerotic blackish or dirty blue spots are sometimes observed concentrically with the lower corneal margin, which are of fatal significance. The spots are of irregular shape, isolated or confluent, and are probably due to a thinning of the sclerotic, caused by loss of moisture. During the stadium algidum, when the heart beats very faintly, the pupils of the patient are nearly contracted. Graefe refers this symptom to paresis of the sympathetic nerve. In the choroid extravasations of various sizes are

sometimes met with. Changes in the retinal circulation manifest themselves by an excessive thinning of the retinal arteries, which are then of a strikingly dark color, and if the eyeball be pressed with the finger, though that would have no significance in its normal condition, yet now pulsation of the retinal arteries and even total discoloration of them will occur. This symptom is of manometric value as to the strength of the waves of blood present in the arterial system. The greater the weakness of the heart the smaller will be the circulating quantity of blood, and the easier will it be for complete anæmia of the artery to take place. The retinal veins are of an excessively dark color, and their caliber is unchanged. Notwithstanding the serious disturbances in the retinal circulation, the acuity of sight is, even in the asphyxial form, not at all or but slightly diminished. A perfect ischæmia retinæ has not been observed, and it is still undecided whether the temporary cessation of sight, which frequently occurs during the stadium algidum, is caused by a disturbance in the retinal circulation or in the brain—the latter appears the most probable.

Trichinosis.—The eyelids take part in the œdematous swelling of the face, which is a frequent and early symptom in trichinosis; the œdema passes over to the ocular conjunctiva and to the transition part. The muscles of the eye are also in some cases affected by the immigration of the parasites. The result is deficient movability of the eyeball; the movements are tremulous and cause pain. The muscles of the eye are, however, much more rarely attacked than other muscles.

Kittel has observed greatly dilated and immovable pupils together with paresis of accommodation in trichinosis, and as no trichinia have been found in the smooth, fibrous muscles, the explanation of this symptom is wanting.

Pyæmic, Purulent, and Septic Infection.—In this chapter those eye symptoms will be mentioned which are caused by formation of a thrombus in the cerebral sinus, by crumbling purulent coagulations getting into the choroid

and retina, and by septic infection of the blood. In these cases, affection of the eye is always caused by inflammatory or suppurative processes in more or less remote parts of the body. Sufferers from serious and quickly developing cerebral symptoms are sometimes affected by remarkable changes in the eyes. These changes are very rare, but when they do occur, it may safely be concluded that thrombosis of the cavernous sinuses is present, as well as of the several veins connected with it, and the prognosis then becomes fatal. These characteristic symptoms are quickly developed and great protrusion of one or both eyeballs, considerable vivid red œdematous swelling of the lids and conjunctiva, which protrude as in panophthalmitis—between the lids, absolute, or very nearly absolute immovability of the eyeball, enlarged immovable pupil, greatly decreased vision or total amaurosis. Athough these symptoms resemble in general those found in panophthalmitis, yet there are other symptoms of that disease wanting, which are found in the eyeball itself, such as occlusion of the pupil through exudation, pus in the anterior chamber, changes in the iris, opacity of the cornea, or these symptoms may make their appearance only at a later stage of the disease. Whilst in panophthalmitis, the infiltration of the cellular tissue of the orbit, the enormous swelling of the conjunctiva, the protrusion and immovability of the eyeball, are caused by inflammation of the choroid, these complex symptoms arise in cases of thrombosis of the sinus from the seclusion of the vena ophthalmica cerebralis, and probably also of the vena ophthalmica facialis. The infiltration thus causing a cessation of a venous circulation in the cellular tissue of the orbit in cases of thrombosis of the sinus, may be either œdematous or purulent. Thrombosis of the sinus and veins may arise from furuncles, abscesses in the face, lesions of the head, meningitis, and puerperal diseases. Crumbling purulent coagulations have been found in one or both sinuses, in the sinus Ridleyi, the petrosal sinus, and in others in the vena facialis, vena ophthalmica facialis, and in the jugularis interna, metastatic abscesses in the lungs were also

present. Whilst in cases of thrombosis of the sinus, the eyeball shows symptoms of disease, mostly in a secondary degree, symptoms appear in the eyeball primarily in those cases where masses of infectious coagulations are forced into the vascular system of the eyeball. The process then becomes more dangerous for the eye—less dangerous to life. Choroiditis with purulent exudation is sometimes seen in one, rarely in both eyes, in puerperal fevers, in inflammation of the umbilical veins in new-born children, in caries at the base of the cranium, in pyæmia after surgical operations, separation of cellular tissue, pulmonary tuberculosis, endocarditis, empyema, phlebitis after venesection. The sight of the affected eye is quickly and permanently lost in each case. The process in the eye itself may have two different terminations: if the patient survives, either the vitreous and anterior chambers become filled with pus, and perforation of the cornea or sclerotic takes place and the eyeball shrinks and shows only a small bluish spot as remnant of the cornea, or the symptoms may be less severe, the bulb and cornea becoming merely somewhat smaller without perforation taking place.

It is a very remarkable fact that in a great majority of cases these metastatic ophthalmias are caused by diseases in the sexual organ of women, and more especially by puerperal inflammation.

As to the connection existing between pyæmic ophthalmia and the primary seat of suppuration, the same hypothesis must be applied which has served as explanation of the other metastatic inflammations. It is certain that capillary embolism occurs in consequence of small clots coming from an ulcerated endocardium; it is likewise certain that metastatic panophthalmitis may have its origin not only in the choroid, but also in the retina. According to both, a septic retinitis occurs in cases of severe wound fevers and extended suppuration of the joints. This septic retinitis does not lead to an affection of the whole eyeball, but is confined to the retina, and is therefore of a milder type than embolic retinitis and choroiditis. Numerous small

white or reddish spots show themselves round the papilla optica and macula lutea, generally in both eyes. These observations are the result of post-mortems, no ophthalmoscopical examinations having been made during life.

Syphilis.—Syphilis may give rise to diseases of nearly every part of the eye. The integument and cartilage of the eyelids, the lachrymal apparatus, the conjunctiva and cornea, the uveal tracts, corpus vitreum, retina, optic nerve and the central organs of sight, and the nerves supplying the muscles of the eye, may all become affected. Even the lens, though in an indirect way, may lose its transparency. The lachrymal glands alone are perhaps exempt from the effects of syphilis. As regards the frequency of syphilitic affections clinically presented, in eye patients, the statistics given by Coccius, in Leipsig, show that 7,898 cases of eye diseases were treated during the years 1868 and 1869, of which eleven per cent. were of a syphilitic character; in these cases there were thirty-one per cent. cases of iritis (including complications of that disease); forty-six per cent. of pure iritis; nine per cent. of obscuration of the vitreous; sixteen per cent. of different forms of retinitis; thirteen per cent. of affections of the optic nerve. The following conclusions were arrived at: First, that syphilitic disorders of the eye are more frequently binocular than monocular; second, that syphilitic inflammation in fourteen cases out of twenty-five affects the iris, and in eight cases out of twenty-five the retina; third, that complicated syphilitic affections are for the most part binocular.

Amongst ulcerous affections of the lids, caused by syphilis, a few cases of the soft non-infectious ulcer, and one case of indurated infectious ulcer affecting the margin of the lids, have been noticed. The diagnosis of the last case was secured by the appearance of secondary symptoms.

Gummatous tumors of the conjunctiva are exceedingly rare. The few cases noted were seated close to the outward of the cornea, in the ocular conjunctiva, and were about one-half inch in diameter, surrounded by strongly injected

conjunctiva; one case has been observed in the palpebral conjunctiva.

Corneal affections, as the expression of secondary or tertiary syphilis without iritis, occur very rarely. Mauthuer describes an affection under this class as, "keratitis punctata." Syphilis never causes an ulcerative form of keratitis; on the other hand, the opinion gains more and more ground, that keratitis interstitialis diffusa is frequently based on hereditary syphilis. Hutchinson thinks that this is invariably the case, and finds in the condition of the permanent upper central incisors a particularly important proof of this ætiological connection. The characteristic malformation of the teeth consists of a dwarfing of the teeth, which are usually both narrow and short, and of atrophy of its middle lobe. This atrophy leaves a single, broad vertical notch in the edge of the tooth. Sometimes, the teeth diverge, and at others they slant towards each other. These deformities are, according to Hutchinson, found in all cases of this form of keratitis. Forster denies this, stating that although the teeth are often found in that condition, there are no cases in which teeth present no deformities; on the other hand, different and frequently recurring conditions and symptoms occur in persons afflicted by this form of keratitis, which make it probable that they are founded on a certain diathesis. This form of keratitis, together with inflammation of the joints and periostitis, and cicatrices near the mouth, are frequently present. There is no other permissible explanation of those long, narrow deep lines, than that they are the cicatrices of those easily bleeding and often deep rhagades of which the physiognomy give so characteristic an expression. Another symptom, which although of rarer occurrence is often observed in connection with those rhagade cicatrices, is a sunken nose. Nearly as frequent as this nasal defect, is a hardness of hearing of both ears. Ulcers of a phagadenic character in the velum palati also exist in patients suffering from this corneal affection.

If all these symptoms are taken together, viz: the presence of keratitis in both eyes, the recurrence of relapses, peculiar dental malformation, characteristic rhagade cicatrices round the mouth, the sunken nose, the ulcerous destruction of the soft palate, the inflammatory processes in the joints and periostitis, and finally the generally debilitated appearance of the patient, it will be safe to say that a constitutional disease, in all probability syphilis, is the basis of the matter. This probability becomes a certainty if, as is often the case, it is conceded that either the father or mother had suffered from lues, or if one or many of the consequences of that disease are found existing in them.

It cannot be said, however, that keratitis diffusa always stands upon a syphilitic basis, for in many a patient the history of the case reveals nothing, and there are no symptoms indicating syphilis.

The choroideal tractus, more especially the iris, is the part of the eye most frequently affected by syphilis. Fournier believes that iritis occurs in about three or four per cent. of all syphilitic diseases. According to Wecker, out of one hundred cases of iritis fifty to sixty are of syphilitic origin.

That iritis may be caused by congenital syphilis has been proved by some known cases. According to Mackenzie, iritis is pretty frequently the consequence of congenital syphilis, and it may be the first symptom observed.

There exists no pathognomonic symptom common to all cases of syphilitic iritis, so that as a rule the syphilitic origin of iritis must be supposed to exist when other signs of syphilis are present. It cannot, however, be denied that syphilitic iritis possesses certain peculiarities which characterize it more particularly, although not exclusively. In the first place it is of frequent occurrence that when lues is present both eyes are affected, one soon after the other; photophobia, lachrymation, injection, ciliary neurosis, are generally not very severe at the outset of the disease, nor do the cases, as a general rule, assume a violent type, and

the symptoms increase by degrees. Generally, hypopyon is found wanting, but all this applies to the plurality of cases, and exceptions to the rule are by no means of rare occurrence; opacities of the vitreous body, demonstrating that the ciliary body and choroidea also participate in the process, occur frequently, in about fifty per cent. of all cases, according to Schmidt. The occasional presence of so-called condylomata of the iris, small yellowish tumors near the pupillary edge of the iris, or larger circumscribed tumors on the peripheric part of the iris, which sometimes reach to the cornea and become flattened there, are observed almost exclusively in iritis of syphilitic origin. These tumors are shown by microscopical examinations to be gummatous tumors or syphilitic.

Simple, non-gummatous iritis, by far the most frequent form in syphilis, belongs to the earlier symptoms in lues. It usually appears some time after the eruption of roseola syphilitica, simultaneously with condyloma or pharyngeal affection. Relapses are as frequent as in syphilitic affections generally. The gummatous form of iritis seems to belong to a later stage.

Gummatous tubercles are also met with in other parts of the eye. Barbar describes them as being nearly as large as a cherry-stone. These tumors are of a yellowish red or gray-yellow color; they rise from the sclerotic next the cornea and lie under the movable conjunctiva; they take their origin either from the sclera, or from the corpus ciliare and iris, and may, if they attain a considerable size, cause the eyeball to shrink. In a case described by Hippel, the retina, as well as the sclerotic and choroidea, was the seat of gummatous tumors. These gummatous tumors of the conjunctiva and sclera are, however, exceedingly rare.

Next to the iris, the choroidea is the most often affected by syphilitic disease. Forster excludes for various reasons the so-called choroiditis disseminata, thought by many to be always caused by syphilis. It cannot, however, be denied that now and then syphilis must be looked upon as the cause. He considers diffuse choroiditis syphilitica, as

described by him in "Graefe's Archives on Ophthalmology, volume 20," as characteristic of syphilis from the symptoms —opacities of the vitreous, hemeralopia, decrease of vision, zonular defects in the field of vision, photopsias—which develop within a few weeks, their frequent connection with iritis, the often recurring relapses, the simultaneous presence of other symptoms belonging to the late secondary stage of syphilis, the never missing, though sometimes imperfect benefit achieved by mercurial treatment, and the simultaneous disappearance of the syphilis of the integuments and of the mucous membranes, harmonize perfectly with the course of a general syphilitic affection. In very protracted cases, a retinal affection developes itself in this form of choroiditis, which, although resembling retinitis pigmentosa, can be distinguished from it. This explains the suspicion entertained by many observers as to the syphilitic origin of retinitis pigmentosa. Both forms exhibit in common the symptoms of hemeralopia, viz: small field of vision, yellow atrophy of the optic nerve, strikingly thin retinal blood vessels, and development of pigment, which takes place particularly in the peripheric part of the background of the eye.

A distinguishing feature of the syphilitic, non-typical form, is the presence of scattered parts in the peripheric parts of the visual field, which have still retained their functional power. The opacities of the vitreous may, however, be so dense in the syphilitic form of choroiditis that an examination of the background is impossible.

This choroiditis syphilitica becomes developed more especially in the mature and later period of life, during which time the predisposition for choroiditis is great. The appearance of choroiditis syphilitica coincides with the later secondary and first tertiary symptoms of syphilis. In this form of choroiditis, the retina is always sympathetically affected from the beginning, so that really no valid objection exists against calling this disease choroidio retinitis; by some it is looked upon as simply retinitis. Forster considers this opinion not justifiable, as the choroid is pri-

marily and particularly affected, and to all appearances the anterior layers of the retina are much less affected than the posterior ones, which lie nearer to the choroid.

An exceedingly rare form of retinitis is depicted by Liebreich in his atlas (tab. X, fig. 1.) The numerous extravasations, the extended white spots, the very considerable changes in the blood-vessels, distinguish the rare form from the one generally seen in consequence of lues.

Graefe likewise describes a very rare form of syphilitic retinitis as a central, relapsing retinitis, characterized by the appearance of sudden defects round the point of fixation. These may, within a short time, take possession of a large part of the field of vision. Patients are soon unable to read any but the largest test types, and can with difficulty find their way about. Sight is restored in a few days. These attacks occur after the lapse of some weeks or months, and there may be from ten to thirty, even more of such relapses. During the amblyopic period a fine grayish opacity develops itself in the region of the yellow spot, which disappears during the interval. A true neuritis optica, in its various forms, may also become developed under the influence of a general syphilitic affection. Whilst, however, in iritis choroiditis, even in retinitis of syphilitic origin, the local symptoms furnish some clue at least for the ætiology of the affection; we find, thus far, in this neuritis, no characteristic symptom indicative of syphilis—we must, therefore, be guided by the history of the case by other signs of general lues, by the course of the disease, and by the good effects of mercurial treatment. Albutt thinks that a true neuro-retinitis, which spreads from the brain to the eyeball, very often accompanies syphilitic meningitis, and recommends an examination of the papillæ optica in all cases of suspicious headache. Medical works do not abound in cases of syphilitic optic neuritis. By far the largest number of cases of neuritis optica, which are considered as arising from syphilis, exhibit no cerebral symptoms. If the underlying cause of the affection is recognized in time, and a thorough mercurial treatment is carried out, the

prognosis is in many cases good. It is only in syphilitic neuritis that the fully engorged papillæ are observed to return to their normal condition, and that sight is almost entirely restored.

White atrophy of the optic nerve may be caused by lues; Graefe, however, disapproves of a thorough mercurial treatment, merely founded on this ætiological basis, unless there are important symptoms simultaneously present indicating syphilis, such as paralytic affections of the muscles of the eye, hemiplegia, and severe headache; for mercurial treatment, unless syphilis be at the bottom of the disease, may greatly accelerate the atrophic process of the optic nerve. Amblyopia without an ophthalmoscopic noticeable change in the background of the eye, is more frequent than white atrophy in cerebral lues.

Wunderlich states in his excellent work on luetic diseases of the brain and spine, that "blindness often occurs in cerebral lues. It often arises suddenly, but is usually transitory. Ophthalmoscopic examinations, as a rule, reveal nothing." There is no pathognomonic symptom which can be considered as characteristic of the luetic nature of this disturbance of vision. The antecedents and the accompanying symptoms must be consulted in order to recognize the ætiological moment. The accompanying symptoms may be various, as various as the functions of the brain itself. The correct recognition of the luetic origin of the eye and cerebral disease, is of enormous significance for therapeutic success, supposing of course that the physician is not affected with mercuriophobia—although approving mercurial treatment.

Paralytic affections of the eye-muscles without complication with other cerebral symptoms, are often caused by lues. In these cases the seat of the disease must be looked for either at the basis cranii, or where the nerves pass through the cranial openings, or in the orbital course of the nerves, for in rare exceptional cases the nerves supplying the muscles, and not the muscles themselves, are diseased. Cerebral syphilis and peripheric paralytic affections

of the nerves supplying the eye-muscles due to syphilis, make their appearance at the earliest from one to two years after infection has taken place; but sometimes they are developed at a much later period, other secondary symptoms being mostly present, or when they had relatively existed only a short time.

Lead Poisoning.—Besides the nervous disturbances which are well known as being occasioned by lead poisoning, such as colic, arthralgia, epilepsia saturnina, muscular paralysis, etc., an affection of the optic nerve may be observed, which at first is curable, but if neglected leads to disturbance of vision, and sometimes to blindness. The ophthalmoscope has revealed to us that the affection of the nerve arising from lead poisoning is either an optic neuritis or atrophy of the optic nerve. Nearly all cases of affection of the optic nerve are preceded by other symptoms of lead colic, various paralytic symptoms, severe headache, etc. The patients are usually house painters, whiteners, and workers in lead factories. With respect to the process which leads to lead poisoning, various hypotheses have been emitted—nothing definite is known. The opinion that uræmia is the cause, may be correct in a few cases, but certainly not in all.

Tobacco and Alcoholic Poisoning.—The lighter cases of chronic nicotin poisoning show themselves so strikingly by disturbance in visual power, that it is the oculist who has the best opportunity of studying them. The patients in these cases are small eaters, and to some extent suffer from want of appetite; the action of the bowels is torpid; the amount of sleep enjoyed is usually insufficient; the action of the heart is generally accelerated; the patients are restless; their hands shake; their manner is often quick and unsteady; they generally feel fatigued; their memory often fails. Sometimes individuals thus affected, and who are of an anxious disposition, will watch their own case, and recognizing the evil, will refrain from excessive smoking. When this cessation does not take place, it often occurs, especially to those no longer in the prime of life, that vision becomes impaired to so great an extent that professional

help is required. The patients thus affected are often unable to read fine sized types (1.11 Snellen), medium sized print only with trouble, and even occasionally are not able to distinguish Snellen 44. Most of these patients are not only smokers but drinkers (not drunkards), individuals who habitually drink not only at their meals, but often in the course of the day—perhaps four, six, or eight times, alchoholic drinks, beer, grog, wine, etc. There is little doubt, however, that the complexity of symptoms may occur from excessive use of tobacco alone, although it is doubtful if alcoholic drinks, without excess of tobacco, will produce it. Chewing tobacco may likewise cause amblyopia. The true drunkard, often, does not smoke; amongst this class Forster has never observed this amblyopia, although a gradual development of atrophy of the optic nerve is undoubtedly met with in drunkards. The termination of tobacco amblyopia in total atrophy of the optic nerve, is certainly very rare, but a central defect may permanently remain in the visual field. Most patients are cured if they abandon their pernicious habits; they gradually become healthier, and then, and only then, their sight improves. Respecting the connection existing between the effects of tobacco and amblyopia, it is Forster's opinion that amblyopia is caused by the use of tobacco under certain conditions only, namely: if by the use of tobacco or by the simultaneous use of spirits, appetite and sleep have been essentially affected for a long period. A certain inanition seems essential for the development of amblyopia, which does not, however, dispense altogether with the postulate of a specific effect of the nicotin in the fibers of the opticus. The seat of the disease must be looked for in the axial parts of the opticus, not in the brain.

BLOOD POISONING BY BELLADONNA, HYOSCYAMUS, DATURA, MORPHIA, CHLORAL-HYDRATE, QUINIA, SANTONINE.

There are many agents, in addition to lead, tobacco, and alcohol, which if admitted into the body in sufficient

quantities, will decidedly affect the eye, and produce such characteristic symptoms that in conjunction with other symptoms, a conclusion can be arrived at as to the poisoning material.

The effects of belladonna, stramonium, hyoscyamus, and their alkaloids, on the pupil and on the power of accommodation, are well known. The pupils become motionless and much more dilated than they ever do in simple paralysis of the oculo-motor nerve. The range of accommodation is diminished or accommodation becomes paralyzed, and near objects appear greatly diminished in size. If small doses of atropia are taken internally, a medium dilatation of the pupil with decrease in the accommodative power may occur at a time when there are scarcely traces of other general symptoms, such as dryness of the throat and increase in the frequency of the pulse. Forster has also noticed a diminished accommodative power of the musculi recti-interni after small doses of atropia. Large doses of this drug may disturb sight, and even cause blindness. No definite theory respecting these effects has hitherto been adopted. Opium causes opposite symptoms to these. Narrowing of the pupil is one of the symptoms of acute morphine poisoning. VonGraefe observed a spasmodic contraction of the apparatus of accommodation. No particular symptoms are observed in the eye in cases of chronic opium poisoning. In a few cases where hydrate of chloral has been taken for a long time, in strong doses, hyperæsthesia of the optic nerve, similar to the one observed in cases of kopyopia hysterica occurs.

It is well known that even medium doses of quinine will produce a buzzing sound in the head of many persons—sometimes hardness of hearing—even deafness may ensue after very strong doses. The optic nerve is much less affected than the acoustic, although the first never remains entirely unaffected if large doses are taken. Thau is of opinion that sharpness of sight decreases, the visual field becomes obscure, and the pupils are dilated. Santonine influences in a most interesting manner the power of recog-

nizing colors. Even after small doses, the spectrum is shortened at its violet end, that color is then no longer seen, and the complimentary color, yellow, preponderates. This "yellow vision" is caused by paresis of sensitive elements in the retina. If larger doses are taken, the power of distinguishing between colors is lost, and "violet vision" ensues; all dark objects appear of a color between ultramarine and violet. This effect soon passes away, and there is a return to the "yellow vision." The effect produced on the eye by that drug lasts only a few hours. Should larger doses be taken they may give rise to dilation of the pupil and amblyopia.

SECTION IX.—ON THE RELATIONS EXISTING BETWEEN CONSTITUTIONAL DISEASES AND GENERAL DISTURBANCES OF NUTRITION AND DISEASES OF THE EYE.

Scrofula.—Scrofula manifests itself not only in the lymphatic glands, bones and joints, but particularly in the skin and mucous membranes. Consequently ophthalmia scrophulosa affects the most often the outer integuments of the eye, the lids and lashes; sometimes the perichondrium of the cartilage of the lids, the conjunctiva and cornea, whilst the iris, choroid, retina, optic nerve, the muscles and nerves are never troubled by scrofulous affections. Scrofula is manifested on the lids by eczematous and impetiginous inflammations, especially in young children; in other cases often combined with those forms of dermatitis, the hair follicles and their surroundings are affected—blepharitis ciliaris. The destruction of the follicles by ulceration may cause either small or great loss of lashes. Scrofula shows itself on the conjunctiva by catarrhal affections, and by phlyctenular eruptions on the ocular conjunctiva; these severe catarrhs are often induced by eczematous disease of the integument of the lids, or by infection of the conjunctiva by purulent secretion which takes place in the surroundings of the eye. In these cases the catarrhs can never be removed unless the eczema has been previously cured.

The cornea becomes affected under the form of superficial vascular keratitis and superficial circumscribed ulcerative keratitis. In both forms, especially during the progressive stage, severe photophobia is present. The first form may, through repeated relapses, finally cause the formation of the so-called pannus scrophulosis; the last form is observed either in isolated places or in multiple small places; sight is not endangered except by remaining maculæ. Deep-seated ulcers are rarely developed, when they are, it is near the edge of the cornea, perforation of which may be caused and leucoma adherens result. It is worthy of notice, that in these cases of deep peripheric ulcers the formation of hypopyon and secondary iritis are seldom observed.

Scrofulous ophthalmia, mentioned by older writers, is a combination of several of the affections just alluded to. There are, however, in those diseases, no specific characteristics of scrofula. Those diseases may occur without any other symptoms of scrofula, and the presence of one of these affections alone does not justify a positive conclusion as to the existence of a scrofulous dyscrasia. On the other hand, a combination of scrofulous ophthalmia, with swelling of the lymphatic glands, thick upper lip and nose, sore and scaly nostrils, impetiginous eruptions on the face, at the corners of the mouth and in the ears, is very frequently met with, and is characteristic of scrofula. The essential characteristics of these inflammations of the eye which exist in connection with scrofula, are their persistence and frequent recurrence, and necessarily requiring the same internal treatment as for scrofula. With the commencement of puberty these inflammations, together with many other scrofulous symptoms, generally subside.

Leprosy.—Although leprosy, in its various forms, is dying out in Europe, and is only met with endemically on that continent, on some parts of the Mediterranean coast, on the borders of the Black and Caspian Seas, in Norway, etc., yet we possess several detailed communications with respect to affections of the eye in this disease—that these descriptions do not invariably harmonize may be accounted for by the

fact that leprosy varies in its symptoms in different localities, and that the patients examined belonged to various parts of the globe. Leprous affections make their appearance not only in the parts surrounding the eyeball, but likewise in the cornea, the limbus conjunctiva, the uveal tractus and the retina. Some of these affections have very peculiar features, which are not found elsewhere.

In the cornea leprosy showed itself particularly under two forms; first, by opacity and development of blood-vessels, which spread very slowly from the periphery towards the center; second, by the presence of tubercles. The eyes are mostly affected after leprosy has existed for some years, but the first of the two corneal affections mentioned may make its appearance at an earlier stage of the general disease. That form of disease is the most frequent. The tubercles are of rarer occurrence, but proceed always from the corneal edge. They exhibit yellowish, red or whitish prominences, which slope steeply toward the cornea, and become flatter toward the sclerotic. By degrees they extend over a great part of the cornea, cover it, and may, by their size, prevent the lids from closing; finally, after existing many years, they shrink or ulcerate. Shrinkage of the eyeball, without suppuration, is the usual ending, although purulent destruction of the eyeball is not precluded.

Diseases of the uveal tractus, iritis, choroiditis, seem mostly to follow the corneal affection. Disease of the iris may manifest itself by development of leprous tubercles. These may proceed from the peripheric parts of the iris, and whilst developing may fill the anterior chamber; on the whole, the affection of the iris shows a chronic, degenerative character. The choroid, apparently, is always simultaneously affected, and is the cause of the opacities of the vitreous found at the same time. The frequent exit in atrophy of the eyeball, also finds its cause in an affection of the choroid. Bull and Hansen found the retina unchanged in two hundred patients examined by them ophthalmoscopically, but several times in post-mortems, discovered

on the peripheric parts of the retina, which cannot be examined ophthalmoscopically, grayish white spots. On the other hand, out of fifty cases of pellagra Tebaldi met with, only eleven cases showing a negative result on ophthalmoscopical examination. This is not surprising, as the nervous system and mucous membrane are relatively earlier, and more strongly affected in that form of leprosy, commonly designated as pelagra, than they are in the other forms of psoriasis and the true tuberculous (nodous) lepra græcorum. Ophthalmoscopical patients, however, show nothing characteristic; eighteen cases of hyperæmia of the papilla, with somewhat distended and tortuous retinal veins; eleven cases of anæmia or slight atrophy of the optic disc.

The region of the eyebrows is more particularly the seat of leprous tubercles—both eyebrows and eyelashes soon fall. Tubercles on the lids are rare; through ulceration they may cause ectropion, lagophthalmia, paralysis of the orbicularis and its consequences, conjunctivitis; keratitis also occurs. In some countries frequent complications resulting from leprosy are met with in affections of the eye. In Bahia, Pertaglia found eight patients out of twenty-eight affected. In other countries, the eyeball rarely is attacked. Some authors explicitly state that the conjunctiva, unlike other mucous membranes, was found free from disease.

Diabetes Mellitus.—Various disturbances of vision are frequently observed in diabetes mellitus. They may be based on the changes in the power of accommodation or refraction; on opacities in the lens; on opacities and extravasations of blood in the vitreous; on retinal affections generally combined with retinal hemorrhages; on insufficiently known affections of the conductory part of the optic nerve, and even of the central seat of vision, which may eventually lead to atrophy of the optic nerve, and finally on paretic affections of the external eye-muscles. It is certain that diabetes may cause rapid decrease of accommodative energy; this shows itself in a strikingly rapid increase of presbyopia. This symptom may be considered as the expression of a certain general debility or muscular weak-

ness, produced by diabetes, but not as a paralysis of accommodation. Horner mentions a case where refraction of the eye became changed by the axis of the eyeball increasing as the general condition of the patient improved, and the loss of water and sugar decreased.

Opinions vary greatly with respect to the frequency of cataract in diabetes. Out of one hundred and forty diabetic patients examined by Seegen of Karlsbad, he found only six cases of cataract; whilst VonGraefe, whose cases were mostly taken from the graver ones of hospital patients, noticed twenty-five per cent.

Several theories have been brought forward in explanation of the development of diabetic cataract. One is, that diabetic marasmus involving deficient nutrition, causes opacity of the lens; another opinion is that it is occasioned by loss of water, from which the whole body suffers; a third view entertained is, that the cataract is developed by the influence of the chemically changed fluid media which surrounds the lens. Sugar, in the aqueous humor, turns, by decomposition, into lactic acid, and opacity of the lens is thus caused by the acid. In support of this theory several cases are brought forward, in which well known chemists succeeded in proving the presence of sugar in the aqueous humor, and in the extracts of the lens substance. No theory has, however, been considered fully satisfactory. In most cases the cataract is developed in accordance with the zonulary form of development of cataract, which is from near the muscles towards the periphery, and medical works agree in the statement that in all cases where cataract is formed there exists profuse secretion of sugar. Diabetes mellitus has particular influence on the specific sensual (optic) nerve of the eye. Amblyopic affections in diabetes are caused by retinitis, retinal extravasations, with or without degenerative white spots, through atrophy of the optic nerve. There also occur amblyopic affections, showing no noticeable ophthalmoscopic change, either with unimpared field of vision, or with peripheric defects or central scotoms, or with hemiopia. Finally there have been observed more

or less considerable opacities of the vitreous body which were, at least, partly caused by extravasations of blood into the vitreous body from the retinal or choroideal blood-vessels.

The retinal changes observed ophthalmoscopically resemble those found in retinitis albuminurica; but retinal hemorrhages, together with slight cloudiness of the retina, are prevalent, whilst the exudatious white spots are less developed, or may be entirely wanting. The fully marked changes observable in the retina, noticed sometimes in Bright's disease, such as great swellings of the papillæ, numerous large white confluent patches, etc., are wanting in the diabetic form. Opacities of the vitreous, which do not occur in albuminuric retinitis, may play an important part in diabetes, and even cause blindness.

Some writers are of the opinion that diabetic retinitis occurs only when the fundamental disease has lasted for a long time, and the system has become greatly weakened; but Leber as well as others have observed diabetic affection of the optic nerve, when the general health of the patient seemed almost entirely undisturbed.

Cases of atrophy of the optic nerve, as well as of amblyopic affections, which exhibit no ophthalmoscopic changes, have no characteristic symptoms.

Paralysis of the eye-muscles, of the sphincter papillæ, tensor choroideæ, of the external motor muscles of the eye, the levator palpebræ superiorus, and the orbicularis palpebrarum, has also repeatedly been seen in diabetes mellitus.

REPORT ON DISEASES OF WOMEN AND CHILDREN.

BY L. MARIA F. WANZER, CHAIRMAN.

TO THE STATE MEDICAL SOCIETY OF CALIFORNIA—Ladies and Gentlemen: Your Committee on Diseases of Women and Children were requested by your President to prepare a report for this Society, showing the changes which have been recently adopted in the treatment of the above mentioned diseases. In compliance the Committee beg leave to submit the following.

During the months of November and December there were many cases of acute bronchitis and pneumonia among children, the origin and termination of the disease being in direct relation to the meteorological conditions. Dr. Henry Gibbons has kindly furnished the following statistics:

"The cold weather of the Winter was not only remarkable for its regular continuity but for its sudden access. This is well exhibited by comparing the temperature of four successive periods of twenty days each, the last of which marks the onset of cold.

	Mean temp. at sunrise.	Mean temp. at noon.
Oct. 15 to Nov. 2—20 days	54° 45′	68° 80′
Nov. 3 to Nov. 23—20 days	53° 45′	61° 80′
Nov. 24 to Dec. 11—20 days	51° 50′	60° 85′
Dec. 12 to Dec. 31—20 days	41° 25′	53° 60′

It is a curious fact that the first twenty days in the above series were the warmest consecutive twenty days in the entire year, and the last twenty days the coldest. From 15th November to the 29th December, inclusive, a period of forty-five days, the wind was almost constantly from northwest to north. There were but three days in that period when it was not in that quarter in the afternoon.

Only three cloudy days occurred in the same period. The atmosphere was remarkably dry." To these peculiar climatic conditions may be attributed the bronchial and pulmonary complaints with which children suffered during the months of November and December.

Perhaps the only thing to suggest in treatment in addition to what is now generally done by all good physicians, is to urge the use of the thermometer in the little patient's room, that an equable temperature may be maintained. Much knowledge of symptomatic phenomena is acquired by the use of the thermometer. By it clinical investigations are determined with precision in many cases, yet rarely do we find it in the sick room, except when taken there by the physician.

From Dr. Williams, of Richland, two sporadic cases of disease are reported; one of measles, the other of scarlatina; these cases were about one mile from each other, and about the same distance from any other families. Each case well marked; other children in both families, but none of them took the disease—recovery.

In the treatment of cerebro-spinal meningitis the fluid extract ergot is favorably considered by many who have recently used it. Unfortunately, however, if the initial stage has passed without proper treatment, little hope of cure can be offered.

Dentition has given its usual number to the mortuary statistics; in many instances anti-hygienic conditions sustain a causative relation to the deaths.

Our Eastern cities, with a continuous higher temperature in the months of July and August, are not so favored as we are for the cure of their little ones.

Chronic urticaria—several cases of this tedious and troublesome disease have presented themselves for treatment, but after following the teachings of our best dermatologists, the results have not been satisfactory.

Numbers of cases of dystocia, post-partum hemorrhage

and uterine tumors are reported. In several instances tumors have been received following abortions, in which blood being retained and moulded to the cavity of the uterus had acquired sufficient firmness to be mistaken for a polypus.

Atropine is favorably mentioned in our leading journals for the treatment of puerperal eclampsia. It is given in doses of from one-fiftieth to one-sixtieth of a grain. When eclampsia seems to depend upon an abnormal hyperæsthetic condition of the patient, it acts like a specific, more potent than chloroform or the time-honored venesection.

Dr. Q. C. Smith, of Cloverdale, states that in several instances he has used it, and attests its value. That in one case the hypodermic injection of one-fiftieth of a grain of sulphate of atropia promptly quieted the patient, and after allowing her to sleep two or three hours, the os was dilated, labor brought on and completed without further serious difficulty. No alarming symptoms followed the use of the atropia.

During the past year jarborandi, or its alkaloid, pilocarpine, has been quite extensively tried in the albuminuria of pregnancy. The results of its use by different physicians vary greatly. In the cases reported by Fordyce Barker they were especially unfavorable. The prevailing opinion seems to be that it is of doubtful value in this affection, and that dangerous and even fatal depression is apt to follow its use.

Dr. J. M. Reins, of Crescent City, remarks that the past year has been an extraordinary one in reference to dystocia and abnormal pregnancies, especially so when it is noted that the total population of the county is not greater than two thousand souls, excluding Indians and Mongolians. Accounts of several interesting cases are given, but the limits permitted for this paper will not allow a report of them.

The determination of sex in uteri is a question that recently has attracted considerable attention. Prof. Thury, a French veterinary surgeon of the academy of Geneva,

made numerous experiments upon domesticated animals, and succeeded in the production of the sex desired—male or female. Whether the human family would be benefited by any discovery in this direction is a question, but surely the person who would give the power to the parents in many instances to control the sex of their offspring would be considered a benefactor. From Drs. Heitzmann, Swift, Neftel, Napheys, Mudd, Upjohn and others, various contradictory statements have been given, so that as yet no more of a law is established than when observations first began.

Thomas' operation, laparo-elytrotomy, as a substitute for Cæsarian section, is being carefully considered at the hands of the medical profession. The operation had been performed by Ritgen once prior to the date at which Thomas performed it in 1871, and then cast aside. We have reports of all the operations thus far performed—five in number. Three by Dr. Skene of Brooklyn, and two by Dr. Thomas. Of the five mothers three were living, and the number of children delivered alive was four; these are better results than can be shown for the Cæsarian section or embryotomy. Dr. Thomas does not yet regard laparo-elytrotomy as an established standard operation, but one sufficiently tested by experiment to involve discussion of the great question in science. He thinks that hemorrhage may occur, owing to the vascular vaginal supply, but as neither the peritoneum nor uterus is cut, the danger of inflammation is greatly decreased. Whatever the future may determine as to the application of laparo-elytrotomy, surely the success thus far achieved is a great triumph in obstetrical surgery.

Prof. Porro, of Pavia, May 21st, 1875, is attracting the attention of the accoucheurs of Italy, Belgium, Germany and Austria. Porro's operation, removal of the uterus, ovaries and broad ligaments, was performed to arrest what threatened to be a fatal hemorrhage, and notwithstanding puerperal fever was raging in Pavia, his first operation was crowned with success. The operation has been performed

fifteen times; the results being seven recoveries and eight deaths.

An interesting operation in operative gynecology has been performed within the past year by Dr. L. C. Lane. The operation was enucleation of the uterus by the vagina for the cure of epithelial cancer. Time alone can determine whether permanent cure has been effected.

Numerous cases of ovariotomy have been recorded during the past year—several in our State.

Dr. Charlotte B. Brown successfully performed the operation April 20th, 1878, cyst multilocular. The solid tumor weighed seven pounds, and the fluid removed weighed twenty-three pounds. The solid portion was composed of cysts in every stage of development.

Dr. Burgess reports another case—the first in this State reported as being performed in strict accordance with the anti-septic plan. The patient was seventeen years old; tumor unilocular, weight, twenty-eight pounds; adherent more or less anteriorly but not elsewhere; pedicle ligated with silk and dropped, incision less than four inches in length; the result was full recovery without drawback of any kind, in about eighteen days. All the details of Lister's anti-septic method were fully carried out; notes of which Dr. Burgess by request has been kind enough to send, and which, as he has recently been making careful studies in Europe, it is hoped may be of interest.

Dr. Burgess says: "The theory upon which Listerism is founded is well known and needs no comment. The advocates of that method seem more disposed to point to its results than to discuss its modus operandi." It may be well, however, in this connection, to refresh the memory by a brief reference to some of the details of the anti-septic method as applied to ovariotomy.

In addition to the usual preparations for the operation it will be necessary to provide:

First—An efficient spray producer.

Second—An ample supply of the antiseptic solution.

Third—Antiseptic gauze and silk protective (or thymol cotton).

Fourth—A waterproof sheet of thin rubber or mackintosh—say five feet long by three wide, with an oval hole for the abdomen about eight inches long by six wide.

Fifth—Suitable trays or shallow dishes to contain the instruments, ligatures, needles, etc., submerged in the disinfectant solution; also a wash basin containing the solution in which the operator may conveniently cleanse his hands during the operation.

A steam spray producer is preferable to the hand ball apparatus, and it should be capable of furnishing a good volume of spray for at least two hours without the necessity of refilling either the lamp or boiler. Codman and Shurtleff's or Dr. Weir's modification of Lister's apparatus, will fulfill these requirements. I have found Dr. Weir's apparatus satisfactory.

By placing the spray producer, when in use, at the right of the patient and operator, so that the current of vapor may pass somewhat obliquely across the field of the operator, it will probably give the least inconvenience to all concerned. The solution used for spraying purposes is of the strength of one part of carbolic acid to twenty of water. It is estimated that this is reduced by the steam to a strength of about one to forty. For thorough disinfection and certain germ destruction, the one to twenty solution is required.

It is therefore requisite that the skin of the part to be operated upon, the hands of the operator and his assistants, every instrument, sponge, ligature, needle, in short every object liable to be brought into contact with the parts exposed by the operation, shall be treated to this solution, and thereby disinfected. But this strong solution, unless in oil, is highly irritant to freshly cut surfaces, so that it is desirable to use weaker solutions for the sponges, etc., after they have been passed through the stronger. The instruments, silk, etc., may be transferred to a one to thirty or one to forty solution while in use. The wound is dressed

in the usual manner—that is, it is covered first with the silk protection, and then with the folded gauze; but enough of the latter may be used to pad out under the plasters and binder, instead of the raw cotton commonly employed. A sheet of rubber cloth or mackintosh in the last or top fold of the gauze should not be forgotten.

Instead of the protective and gauze, Mr. Spencer Wells often uses thymol cotton; and the borated cotton has sometimes been used. Perhaps neither of these are so absolutely safe as the gauze, but they are more conveniently used. Mr. Thornton, at the Samaritan Free Hospital, London, places a broad fold of lint, soaked in the carbolic solution, over the silk protective, and then covers the whole with the gauze. Should it be found desirable to direct the current of the spray straight along the line of incision during the operation, the upper border of the water-proof sheet covering the patient may be held up so as to protect her face from the spray. It is hardly necessary to add that the after dressings must be made under the spray and with all the antiseptic precautions until the wound is completely cicatrized.

It will bear repetition that the success of the antiseptic method depends upon the exercise of great cleanliness, and the minutest attention to details, so that the contact of even a single living germ with the parts exposed shall be rendered absolutely impossible.

To Dr. W. H. Mays belongs the honor of having performed the latest reported operation of ovariotomy. Operation, February 23d, 1879; large multilocular tumor; imprisonment of stump and complete recovery. The details of other less successful cases would be very instructive could we obtain them, but unfortunately as a rule we are not willing to report our failures.

All of which is respectfully submitted.

ESMARCH'S BLOODLESS METHOD IN SURGICAL OPERATIONS.

BY A. B. NIXON, M. D.,
SURGEON-IN-CHIEF OF THE CENTRAL PACIFIC RAILROAD HOSPITAL, SACRAMENTO.

The bloodless method in performing surgical operations upon the extremities of the body has been, by common consent of surgeons, attributed to Professor Fredrich Esmarch as the author, as it was through his efforts and practice that this mode of operating was first brought to the general notice of the medical profession. The appliance used by him for the purpose of pressing the blood out of the limb to be operated on, was simply composed of two rubber bandages, about four or five feet in length, one being about twice the width of the other. These bandages are the invention of Professor Esmarch, and are now called Esmarch's tourniquet, and can be found for sale in almost any well-furnished surgical instrument store. In San Francisco it can be found at Folker's, on Montgomery street, Occidental Hotel building. The wider of the two bandages should be first applied to the limb as a roller, and sufficiently tight as to press the blood upward toward the body, and carried sufficiently high so as to include that part of the limb to be operated upon; then the other bandage should be similarly applied above the first and made secure. The lower bandage is then to be removed, when the limb will be found bloodless and ready for the operation. The limb should be cleanly shaven, and the patient put under the influence of an anesthetic before the tourniquet is applied. Everything now being ready, the operation can be commenced, when it will be found that the

soft tissues are nearly destitute of blood—there not being sufficient to scarcely soil the surgeon's instruments, and none whatever to drip from the incisions. In cases of amputation the mouths of the arteries will be discovered perfectly empty, and can be much more readily found than in operations by the old method, as there is no venous blood oozing out of the wound to obscure them, and no need for sponging by an assistant. Torsion may be made upon the small arteries whilst the larger ones can be ligated. After all the arteries are thus secured, the remaining bandage should be slowly removed, and if any small arteries should spring they can be secured by further torsion or ligatured.

I think a surgeon should be in no hurry in closing up the wound after an amputation, but better to wait until all oozing of blood ceases, and the cut surfaces become glazed, as it were, with a film of plastic lymph, after which the flaps can be neatly and gently pressed together, and secured by the interrupted silver suture. As a dressing for the stump, after amputation, I prefer several thicknesses of patent lint, saturated with a lotion composed of clear tepid water, with the addition of about one-thirtieth part of carbolic acid, and this applied as a compress, and secured in place by a bandage. This dressing should be changed daily as long as there is any drainage, or the escape of fluids of any kind. It will generally be found that union by first intention has taken place, and that the spaces between the sutures are well closed, and the margins of the integuments neatly approximated by the slight and gentle pressure of the bandage; but should there be any gaping, such spaces can be easily closed by narrow strips of adhesive plaster. On a first dressing I am not in favor of applying any strips of adhesive plaster, although formerly it was my practice to do so. A stump will drain much better without them, and afterward they can be applied, if needed. A stump dressed as above described appears to drain in a great measure by the capillary attraction or suction of the wet compress, and any suppuration that does take place is

generally drained off, along the course of the ligature. The stump should be laid upon a soft bed of cotton wool, and elevated upon a pillow at an angle with the body of about forty-five degrees.

With these preliminary remarks, I will now proceed to report two cases of amputation—one of a leg and the other an arm—by the bloodless method. One of these was for chronic disease of long standing; the other a recent case of traumatic injury. These two cases are the first of almost any condition of system that a surgeon is liable to meet with in practice, except cases of cancer, and even in such cases I would not hesitate to use this method, if practicable.

Case First.—W. W. Pierce, aged fifty-nine, was admitted into the Central Pacific Railroad Hospital, January 6th, 1875. About twelve years before his admission he suffered a compound comminuted fracture of the lower third of his right leg. The leg made a bad recovery, and ever after gave him trouble. Upon examination of his limb, I found the tibia to a considerable extent necrosed and ulcerated. After treating the case for some weeks with reference to a cure, I finally informed him that I had no hope of saving his leg, and advised amputation as the only means of saving his life. On receiving this information he appeared much depressed in spirits, and said that he would much prefer to die as he was than to take the risk of the operation with the consequent mutilation. The limb continued to get worse all the time, and the disease was rapidly involving the ankle joint and foot. The pain at times was excessive. Purulent discharge was very copious, and much of it of a sanious and offensive character. From this drain upon his system and from the pain he suffered, he became greatly emaciated. To all appearances his time for this world was growing very short, when all at once he made up his mind to have his leg taken off. This was somewhat of a surprise to me, and I told him that I thought in all probability the time for an operation had been deferred too long. He then asked me if I still thought that amputation of the limb was

the only chance for his life. I told him I had no doubt of that, and that I would get him ready for the operation on the following day. He appeared quite impatient about the delay, and manifested anxiety for the operation.

Having read in 1873, in a medical journal of San Francisco, a description of Esmarch's bloodless operations, as published in a letter from London, written by Dr. G. L. Simmons, of Sacramento, I concluded, that as this was a case that would not bear the loss of blood to any great extent, I would try it; but not having the proper tourniquet, I obtained some ten or twelve feet of half-inch India rubber tubing, and used that. On the 29th of March, 1875, I had the patient placed under the influence of chloroform, and after elevating the limb so as to assist the venous blood to gravitate towards the body, I applied the tubing as a bandage—commencing above the diseased tissues, and carried it up a few inches above the knee, and made it fast. I then removed the lower part of the bandage up to within a few inches of the knee, and again made this fast. I now proceeded to operate, when I found the soft tissues apparently quite bloodless. I performed the flap operation about the lower end of the upper third. The stump was dressed as before described, and the wound united throughout its whole extent by first intention. No case could have done better. There was not a half ounce of blood lost in the operation. After the operation he had no more suffering, and he very soon commenced regaining his flesh, and on the 28th of June he left the hospital, having fully recovered his health. He is now engaged in business on the corner of Fourth and Townsend streets, San Francisco, and gets along quite well with the use of an artificial leg.

Second Case.—E. P. Snyder, aged forty-three, brakesman, had his right arm crushed from the hand to the elbow by two truck-wheels of a heavy freight car passing over it. The accident occurred at the summit of the Sierras, consequently several hours intervened before I saw him. He was brought to the Railroad Hospital as soon as possible, and immediately put upon the operating table. After the

administration of an anesthetic, I applied Esmarch's tourniquet, and amputated at about the lower end of the middle third of the humerus. There was scarcely a drop of blood lost during the operation. The stump was dressed as before described, and union by first intention the result. He was confined to his bed but a few days, and at the end of three weeks he left the hospital, feeling quite well, and but very trifling tenderness of the stump. Indeed, the case made the most rapid recovery that I have ever witnessed.

In applying the elastic tourniquet it does not require to be drawn very tightly, but just sufficiently to check the arterial circulation. Under the gradual tightening of the elastic bandage the capillaries rapidly empty into the veins, and the blood is thus forced upward into the body, leaving all the blood-vessels empty. How long a limb could bear this pressure I am unable to say, but in the two cases above reported there appeared to be no injury whatever sustained.

PERI-UTERINE CELLULITIS AND ITS SEQUELÆ.

By ELIZABETH GRISELLE, M. D.

Although this disease was recognized as early as the second century, and received brief mention during the few following centuries, it seems, subsequently, to have been either overlooked or misunderstood by medical writers, until Dr. Wiseman, of England, in 1679, and Puzos, of France, in 1748, called more particular attention to its existence; and within a period remembered by many present, Nouat, as well as some of the most eminent of the medical profession in Great Britain, began to discuss with clearness and accuracy, the nature of the affection. During the last decade, leading physicians in this country and in Europe have studied it carefully, both clinically and in post-mortem examinations.

There appears to be a diversity of opinion among eminent gynæcologists in regard to the frequency of this disease. In a practice of over twenty years, I have not met with it extensively, but have frequently had the most troublesome and grave sequelæ to contend with, which were caused either by this or pelvic peritonitis, which leads me to suppose that its existence may sometimes be overlooked, or its symptoms be confounded with those arising from disease of the fallopian tubes, ovaries, abdominal peritoneum, or viscera. Its discovery may require careful scrutiny, for cases often assume the sub-acute, and not infrequently the chronic form, before a physical examination is attempted. Even then, the diagnosis of diseases of the pelvis requires the greatest skill, as there are many difficulties to contend with. Eminent surgeons have repeatedly diagnosed the

presence of ovarian tumors, and have laid open the abdominal cavity to find their mistake.

Pelvic cellulitis seldom occurs primarily, except in connection with abortion or parturition, but may result from acute retroversion of the uterus, or other morbid states of that organ, or surgical interference with it. It depends, too, in great measure, frequently, upon a strumous and sometimes a syphilitic diathesis. There is often, doubtless, failure in distinguishing it from pelvic peritonitis, which is found more frequently among women who have never been pregnant, and although the two disorders almost always complicate each other, they are essentially different in their characteristics, as the tissues affected differ; the one cellular and the other serous.

Many gynæcologists consider peri-uterine cellulitis as a disease affecting only the areolar tissue between the broad ligaments and that which is in immediate contact with the uterus, but the rapidity with which the inflammation spreads by continuity of structure to all surrounding tissues, makes the distinction of less significance. We know that acute metritis, where it exists, implicates the surrounding organs; that ovaritis and endometritis are often the cause of pelvic peritonitis. That must be a limited peri-uterine cellulitis which does not also become pelvi-peritonitis, and seldom occurs except in that portion of tissue lying between the cervix uteri and the bladder. Intra-uterine injections, entering the fallopian tubes, often cause contraction with violent, acute salpingitis, which, in turn, may produce peritonitis by the extension of the inflammation from the mucous membrane with which it is continuous.

The tender roof of the vagina, the contracted utero-sacral or broad ligaments, the enlarged and often displaced ovaries, all interfere with a clear understanding of these cases, especially where a complete history of the initiatory stage cannot be obtained. Cases of recurrent peri-uterine cellulitis are generally, if not always, associated, either remotely or recently, with gonorrhea; this disease in a latent form may predispose to repeated attacks, with only slight appreciable

cause. It is generally admitted that lateral dislocations of the uterus, especially in which the whole of the axis is involved, have their origin in contractions of the ligaments, which, doubtless, are the result of acute cellulitis. In a large majority of these cases there may be traced a history that will prove gonorrhea to have been the cause, the patient having been infected so gradually that particular attention was not paid to the developing symptoms until the disease had progressed almost imperceptibly to those structures in which, with the aid of some exciting cause, it passes into an active stage. Eminent authorities consider this disease symptomatic of uterine or ovarian inflammation, and seldom idiopathic.

Dr. Barnes states that in dividing the os externum for dysmenorrhea, three fatal cases of pelvic cellulitis have occurred in his practice; and Dr. Emmet says that this disease will follow in a certain number of cases where important operations have been performed upon the uterus.

Dr. Thomas, in his excellent work on diseases of women, says he has observed that usually one side only is affected in cellulitis; doubtless this fact will account for a majority of the cases of lateral versions of the uterus. In examining statistics I find it recorded that among one hundred and five cases of latent gonorrhea where mal-position of the uterus was observed, either lateral or antiversion occurred most frequently. Latero-version, having a marked tendency to the right side, is the most commonly observed dislocation in those women known to be suffering from latent gonorrhea. It has also been observed that where abortion or parturition had caused the inflammatory condition, whether associated with gonorrheal taint or not, there was greater liability to terminate in suppuration than in those caused by accident.

Permit me briefly to mention a case or two in illustration of the gravity of the results of pelvic cellulitis. I was called to see Mrs. N., thirty years of age, with a naturally strong constitution, who was in the fourth month of pregnancy, being a primipara. She had been suffering for

several weeks from the most persistent nausea and vomiting; not being able to retain even liquids within the stomach. Ten years before, she had traveled by stage twenty-four hours without evacuating the bladder, and in jumping from the coach she was attacked by violent pains, followed by vesical distension and all that nervous derangement which is connected with acute retroversion. The charlatan who attended her did not comprehend her condition, and the catheter was not used, nor was any attempt made to restore the uterus to its normal position. Narcotics relieved the tenesmus, relaxed the sphincter urethra, but failed to lift the fundus uteri, and pelvic inflammation followed, of which I could not obtain a clear history, causing adhesions that held it fixed in this mal-position. Unsuccessful efforts had been made by several physicians to break up the adhesions during the years that followed, but as her health did not seem to suffer to any great extent, no very vigorous measures were taken to relieve her. Dr. Barnes, whose writings add so much to our knowledge concerning this disease, tells us that, practically, these adhesions frequently disappear; that the constant strain of the pelvic organs, in their functional movements, causes the adhesion to undergo atrophy, either complete or partial. This lady was not so fortunate. However, the existence of pregnancy, with its consequent enlargement of the uterus, inaugurated a strife between the adherent tissues and vis natura, which was striving to lift the gravid uterus from its Promethean bondage. Her life was only saved by the evacuation of the contents of the uterus, and it afterward required months of patient and cautious efforts to break up the adhesions, in which I was greatly aided by the use of a stem pessary, which, by its constant pressure, accelerated their atrophy. The fact that she has lately borne a healthy child, with no more than usual suffering, is evidence that these troublesome conditions sometimes yield to treatment. In this case there was no possible gonorrheal taint, and there was no recurrence of the disease at any period, although her treatment was, from necessity, not always gentle.

I have now under my care a lady of rather delicate health generally, over thirty years of age, who is pregnant four and a half months. She has been married twice, and during her first marriage she had a healthy child with no difficulty at the time of her confinement. Since living with her second husband she has had four miscarriages, produced, I am told, by herself, although she persistently denies, to me, ever having had any. The last one, occurring a year ago, resulted in pelvic cellulitis, followed by suppuration, adhesion, and mal-position of the uterus; the fundus being toward the right side. Not knowing the patient then, I can give no account of the train of symptoms at that time. During the first six weeks of her present pregnancy there were no symptoms demanding the care of a physician, but at the end of that time she was suddenly taken with violent pains, chills, vomiting, and excessive perspiration and prostration. Her temperature being at first below the normal, and afterwards rising to 103°, and the pulse reaching 130. She gradually and only partially recovered from this attack, when another paroxysm occurred of equal violence. Since that time the almost insupportable accompaniment of attacks of angina pectoris has made her case one of real danger. Her extreme thirst, with nausea, and inability to retain medicines in the stomach, renders her case difficult to treat. She has tympanitis and tenderness over the hypogastrium, and occasional tenesmus. The increasing size of the uterus, and the natural tendency to rise above the brim of the pelvis, keeps the adhesion constantly on the stretch, producing inflammation of the peritoneum and a train of constitutional disturbances. The thermometric range varied, sometimes only a degree above the normal, while the pulse was as high as 130 per minute, the action of the heart being accelerated by the pain rather than the inflammation. Her temperature gradually reached 102°, but is now almost stationary at 99°. If the remote results of abortions, which may produce so deplorable a condition, were even dreamed of by the persons who tamper

so ignorantly and desperately with life, they would be horrified at their recklessness.

I cannot close without referring to Dr. Skein's admirable work on diseases of the bladder and urethra, where he speaks of the effects of acute peritonitis and cellulitis in causing great distress in the region of the bladder, with dysuria. He says the adhesions formed by the product of inflammation, are in some cases sufficient to prevent the normal filling of the bladder, and frequent urination then becomes a necessity. Another sequel of cellulitis is retrocession of the uterus, in which this organ, without changing its axis in relation to the superior strait of the pelvis, rests in the posterior portion of the pelvic cavity, and is firmly fixed. The bladder is drawn backward, and is very irritable, with inability to empty it without resort to the catheter.

If peri-uterine cellulitis were not immediately dangerous, the more remote results would render its occurrence one of the most deplorable that can happen to woman.

GALVANISM,

IN THE TREATMENT OF PUERPERAL CONVULSIONS—THE RELIEF OF PAIN IN TRAUMATIC INJURIES AND OTHER PAINFUL CONDITIONS.

BY Q. C. SMITH, M. D., OF CLOVERDALE.

The main object we have in view in offering this brief paper is to call the attention of our fellows more particularly to the general usefulness of electricity in ordinary practice, and especially galvanic electricity.

Experience and observation have taught us not to regard electricity as an unfailing specific in the treatment of any class of diseases, but to invoke its invaluable aid for the cure or relief of many diseased or painful conditions. We are all aware that previous to the introduction of the recently improved electrical apparatus, that general practitioners were deterred from using electricity in ordinary practice, and more especially the galvanic current, which is far the most useful form.

But such obstacles and objections now no longer obtain, and therefore we hope to be pardoned for earnestly suggesting to those of our fellows who have heretofore neglected this invaluable therapeutic agent, to hasten to bring to their assistance this most serviceable and powerful remedy. We have devoted much and close attention to electro-therapeutics, yet we do not feel capable of deciding which form or mode of application will, in every given case, produce the best results. We have found galvanism the most useful form in daily practice; while in some cases, especially paralytic, magnetic electricity serves an invaluable purpose. But for the relief of pain or spasm, almost regardless of their cause, the constant galvanic current

has no equal; to call your attention to the practical usefulness and benefits of electricity in its different forms and various modes of application, would weary your patience and insult your intelligence; we would respectfully refer you to the following works, which we have consulted: "The Electric Bath," by Scheig; "Lincoln's Electro-Therapeutics;" "Reynolds' Clinical Uses of Electricity;" "Neftel's Galvano-Therapeutics;" "Tibbitts' Hand Book of Medical Electricity;" "Morgan's Electro-Physiology and Therapeutics;" "Meyers' Electricity," by Hammond; "Beard and Rockwell's Medical and Surgical Electricity."

We have had considerable experience with Pulvermacher's galvanic belts and chains, and find them very useful in many cases; one great point in their favor being the convenience and simplicity of heir application. The points against them are: the weakness, inconstancy and unsteadiness of their current and early exhaustion of the apparatus; but in the practice of country practitioners, especially, they may be made to give relief in many cases that could not, conveniently, be obtained from any other source.

For the application of galvanic electricity at or near the office, or in more or less grave cases, we use Bartlett's thirty-six rubber cell battery, as lately improved by the Galvano Faradic Manufacturing Company of New York, and find it a very convenient, efficient and useful apparatus. We have treated but one case of puerperal convulsions by galvanism. The case referred to was as follows: Mrs. W., Anglo-American, age twenty years, married two years, highly nervous temperament, aborted twice, frequently suffers from "bad nervous spells," both before and since marriage. February 17th, 1879, was called in haste to see Mrs. W.; found four physicians present, who gave the case up as hopeless, and went away. The patient was six months advanced in pregnancy; had been suffering frequent and severe convulsions for eight hours, which were still recurring with unabated frequency and severity. Chloroform, both by inhalation and stomach, and other

anti-spasmodics, had been freely administered; morphia and hydrate-chloral hypodermically injected, and in fact the usual line of treatment had been exhausted, without any apparent benefit. During the brief interim of the convulsions the patient lay quiet, breathing heavily, in deep coma, which to relieve we essayed to bleed from the arm; found the blood very dark, and so thick that it would scarcely run, so that notwithstanding we made a large opening in two veins, we could get only a few ounces of blood. The pulse was slow, feeble and labored. This small bleeding produced no appreciable effect upon the circulation or convulsions.

At this critical juncture it occurred to us that my Sampson anti-spasmodic remedy, galvanic electricity, would aid us in this agonizing strait; and our battery being in order, we hastened to bring it, and applying one pole—the negative—to the os uteri, which was firm and closed, and the other mobile over along the dorsal and lumbar spine, and turned on first five, then gradually increased to fifteen cells. Just when we were arranging the electrodes the patient showed signs of another oncoming convulsion; but as soon as the current began to flow she became quiet, and after it had run at the strength of fifteen cells for half an hour, the patient again showed signs of a recurring convulsion, and we increased the strength to twenty-five cells, and thus allowed it to run for one hour, and as no indication of the convulsions returning were manifested, and the skin where the external electrode was applied had become quite red, the circulation much better, and the patient sweating profusely over her whole body, we gradually diminished the strength of the current, and removed the battery; watched the case, and awaited further developments. The convulsions had been recurring every fifteen to thirty minutes. The patient's tongue was so swollen, as a result of severe biting, and her mouth and throat burned by the reckless use of chloroform, so that for several hours it was impossible for her to swallow, and quite difficult even to breathe. The stethoscope told us that the fœtus was dead.

We watched the patient five or six hours, no more convulsions occurring, the patient slowly improving. We now thought proper to remove the fœtus—what Tyler Smith and other high authorities say to the contrary notwithstanding; and believing ourselves now, thanks to galvanism, masters of the situation, we gave free hypodermic injection of ergot, dilated the vagina and os uteri well with Barnes' dilaters, kneaded the womb, and brought on contractions, ruptured the bag of water, turned the fœtus (female), and delivered by the feet, and the placenta immediately—as we usually do—by firm, steady, external pressure or squeezing. During the operation of delivery the patient was somewhat restless, and at times moaned as if in distress, and lost about a half pint of blood, with apparent benefit, as the coma soon began to pass off.

Suffice it to say, further, that the patient made a good recovery.

Case Second.—May 25th, 1878, was called in great haste to see Mr. H., a large, strong, middle-aged man, who had just received severe injuries by holding a truck wheelbarrow while a large box was being rolled upon it, the great weight of which instantly crushed him to the floor, severely straining the muscles of his body, arms and legs, and more especially the muscles of his back, in the lumbar region. When we reached the patient, a few minutes after the accident, he was suffering the most exquisite and excruciating pain possible. We immediately administered, hypodermically, one grain of acetate morphia, and gave by the mouth quinine five grains, fluid extract aconite five drops, chloroform one dram, and applied chloroform and aconite liniment to the painful parts for half an hour, all of which mitigated the pains only in a small degree. Not daring to give more opiates at once, we then thought of our galvanic battery, and hastened to bring it, and applied the electrodes mobile over the painful parts, frequently reversing the current, using only eight to ten cells. The patient experienced immediate relief, became quiet, and to the alarm of the bystanding crowd, went to sleep—they think-

ing he had swooned away, as previously his groans had been incessant. We continued the application of galvanism for one hour, gradually diminishing the strength of the current to five cells, and the patient slept quietly three hours. When the patient awoke he felt but little pain, but efforts to move himself revealed considerable muscular soreness, which was greatly relieved by mobile weak frequently reversed galvanic currents. Within forty-eight hours the patient was able to walk around and look after his business.

These are merely given as illustrative cases, and elaborate comment on our part seems unnecessary.

We have frequently used galvanism very successfully for the relief of gastric disturbance, nervous and sick headache, backache, earache, rheumatism, neuralgia and nervous derangement in its various forms and manifestations. And for the prompt relief and permanent cure of the persistent severe cerebral pain, caused by inhaling the poisonous fumes emanating from quicksilver reduction works, we know of no remedy or combination of remedies that are comparable to galvanism. And its remedial electrolytic power, as manifested in the treatment of this class of ailments, is truly wonderful. We have treated with galvanism quite a number of this class of cases, some of which had been skillfully treated with drugs, for several weeks or months, with little or no apparent benefit, and which were grave and unpromising indeed, and these cases would experience marked relief from the first seance, and steadily improve until more or less completely restored.

To briefly sum up our confirmed and deliberate opinion of the curative value of electricity, as substantiated by our own experience, and as corroborated by the experience and observations of others vastly superior to our's, forbearing the tedious details of particularized cases, we must say that physicians who now fail to bring its aid to their assistance, in the treatment of diseased or painful conditions, willfully deprive themselves of a remedy, the scope, power and availability of which is not nearly equaled by any other therapeutic agent.

REPORT OF COMMITTEE ON NECROLOGY.

BY GEO. HEWSTON, M. D., OF SAN FRANCISCO, CHAIRMAN.

JOHN T. CROOK.

John Taylor Crook, M. D., was born in New York City, July 14th, 1834; was educated in one of the large schools in that city. He entered, for the study of medicine, the office of Doctors Willard Parker and Robert Watts, Professors, respectively, of Surgery and Anatomy in the College of Physicians and Surgeons, at which College he matriculated, and from which

he graduated in 1857. He was, soon after, appointed assistant to Dr. Henry N. Whittelsey, Resident Physician at the Nursery Hospital on Randall's Island. This institution, under the control of the Alms House Board of Governors, cared for children at the charge of the city, whose ages were from two to fourteen years. Dr. Crook remained upon the Island three years; the last two years, owing to the continued ill health of Dr. Whittelsey, the entire care of the Medical Department rested upon him.

About this time, the Legislature of New York abolished the "Old Board," substituting therefor the "Board of Commissioners of Public Charities and Corrections." Among the changes made by the new Board was the abolishment of the position of paid assistant to Dr. Whittelsey, and the annual appointment of two assistants, to serve one year without salary. It was the good fortune of the writer of this to serve one year under Dr. Whittelsey, and he is most happy to record the testimony of his honored teacher regarding his former assistant Dr. Crook. He invariably spoke of him with affectionate regard, placing him high as a man and as a physician.

After leaving Randall's Island, Dr. Crook was employed as surgeon by the Panama R. R. Co. and the Pacific Mail Steamship Co., in all some seven years. He made several voyages between New York and Aspinwall, was stationed for a time on the Isthmus of Panama, made several voyages down the South American Coast, but the greater part of the time was spent on the steamers plying between Panama and San Francisco.

He then became a resident of San Francisco, and was appointed Medical Examiner for the Mutual Life Insurance Co., of New York, which position he held until his death. In these several positions, the records of the companies show that he filled them with credit to himself, and to the satisfaction of his employers. Besides his insurance duties, he engaged to a certain extent in private practice in his profession, and was regarded by his patients, not only as a skillful physician, but a warm, true friend.

In December, 1874, he was appointed by the Coroner of San Francisco to make such autopsies as the office required, which position he held for more than three years. His reports are models for directness and conciseness. As a medical witness in criminal cases, where he had made an autopsy, we have the testimony of judges, lawyers, and juries, as to the clearness of descriptions and the value of his opinions.

Dr. Crook was for a number of years a member of this Society, and as such a strong advocate for legitimate medicine; was a member of the Board of Censors for 1876-7. A slight infirmity in speech prevented his being prominent as a debater, but those who have heard him speak when occasion required, will bear witness to his well chosen words and terse sentences. He was also a member of the San Francisco Medical Society,

also member and Secretary of the San Francisco Medical Benevolent Society, being one of its founders and holding his office from its incorporation till his departure from the city.

Some months previous to his death, he showed some signs of cerebral disturbance, and he was advised to seek rest and relaxation. He accordingly left San Francisco in February last for New York via Panama. As far as can be ascertained, he arrived at Panama in about the same condition as when he left San Francisco. On the Atlantic steamer, two or three days from Aspinwall, acute symptoms of a typhoidal character developed. He arrived in New York unconscious, from which condition he never rallied; he died two weeks after arrival, March 22, 1879. His father, sister, and devoted friends were constantly with him till the last moment, without receiving a word or look of recognition.

In closing this brief and of necessity imperfect sketch, the writer begs to add his own testimony, drawn from long personal acquaintance with our deceased fellow member. I ever found him a good friend, a pleasant and intelligent companion, a skillful physician. He had his faults, like all of us, but—

"E'en his failings lean'd to virtue's side."

ABRAM B. MEHRING.

Dr. Abram Buffington Mehring was murdered by Wm. J. White, in the City of Visalia, California, on the evening of the 12th day of September, A. D. 1878.

His age was thirty-five years. He was born in Maryland, on March 17, 1842. He was an only son, and left an orphan at the age of seven years. He was taken in charge by his uncle, Dr. Buffington, of Baltimore, and given a collegiate education. He graduated in medicine in the University of Maryland, and he commenced the practice of medicine in Baltimore, which city was his home, until he came to California, in 1869.

After the battle of Gettysburg, he was sent with other surgeons of Baltimore to assist in the care of the wounded. He was married in 1866 to Lila T. Thorburn, of Albany, New York.

Upon his arrival in California, he located in Woodland, Yolo Co., where he won many friends, and was much respected by all; he also acquired a large practice in his profession. In January, 1876, he moved to Visalia, with a view of improving the health of his invalid wife. He was a gentleman in all things, a zealous student, and honorable physician; a protector of innocence, not a destroyer of virtue. He was never known to have an enemy until the hour which witnessed "the deep

damnation of his taking off." This tragedy is one of the saddest that has ever occurred in the history of the profession of California. It cast a gloom over the entire community, and plunged into life-long grief the wife who was one of the happiest in our midst.

GEORGE C. CHASE.

George Clement Chase was born in Corinsh, Sullivan County, N. H., September 16th, 1811, of English and Scotch parentage. His literary education was obtained at Dartmouth College, and his medical education in the medical department of that institution, whence he graduated Nov. 18th, 1847. He commenced the practice of his profession, first in Lyndon, Vt., but afterwards, in 1851, removed to California and settled in Downieville, where he continued to practice until his death, July 19th, 1878. His illness was protracted over a period of six months, and although not accompanied with extreme suffering, yet he seldom left his bed for more than a few moments at a time.

Dr. Chase became a member of the State Medical Society at its reorganization in 1870; attended but one meeting of the Society, which was in 1872. Living in this remote portion of the State, he was excluded from making an extensive personal acquaintance with the profession, but to those who knew him best he was the upright, honest man. "For all, he ever had a kind word and a gentle smile." His acts of charity were limited only by his means to give. His habits of life were always very temperate, never having used intoxicating liquors or tobacco in any form, except when prescribed by a physician. He was a successful practitioner, especially among children, whom he loved and over whom he had great control.

Dr. Chase held the office of Coroner in Sierra County several years. He was also physician to Sierra County Hospital for a term of five years, during which time he enjoyed the confidence of the Board of Supervisors, and the good will of the inmates of the house. He was more than usually alive to the moral interests of society, and, both by precept and example, sought to elevate it to the highest standard. His soul was full of music, which he cultivated and taught, and, wherever his lot was cast, he was generally the leader of a choir. But over and above all, he was the honored Christian gentleman and a member of a Christian church, at the time of his death.

HEMAN P. BABCOCK.

Dr. Babcock was born in the City of Buffalo, State of New York, in 1840. His father was a prominent lawyer of that city, and the son was afforded every opportunity for a complete education, both in his native place and at Yale College.

He studied medicine in the office of Dr. Rochester, of Buffalo, and graduated at the medical department of the University of Buffalo, Feb. 24th, 1863. He had pursued his studies with such diligence, that he sustained a satisfactory examination before the Naval Examining Board, before he received his diploma, and was appointed assistant surgeon in the navy, where he remained seven years, serving on the Potomac and James Rivers during the war of the Rebellion, and afterwards serving on the East India Station, where he was at one time shipwrecked, and barely escaped with his life. He resigned from the navy in 1868, and entered the Pacific Mail service, serving on the vessels running between San Francisco and Hongkong. He resigned his position in the P. M. Co., and settled in Oakland, in the Summer of 1869. He was an active and zealous member of the Alameda County Medical Association, and held, at various times, every office in the gift of that organization. He was one of the charter members at the reorganization of the California State Medical Society, and was seldom absent from its meetings. He was a member of the Board of Examiners of the State Society, from the original formation of the Board, and, at the time of his death, was President. Dr. Babcock's executive capacity was of the first order, and he was a most untiring worker. In his treatment of his co-laborers he was always a gentleman, and I have never known a man more careful and conscientious in all matters pertaining to medical etiquette, and he might well serve as a model in this particular. During the Summer and Fall of 1878, he suffered from an attack of typho-malarial fever, and as he did not regain his health, at the beginning of Winter he took a journey to his native city, and died, while there, on December 27th, 1878.

A post-mortem revealed the existence of an abcess behind the liver, and opening into the right pleural cavity.

The Society has lost a member whose place it will not be easy to fill, and the community has lost a physician whose skill was undoubted, and who was a credit to the honorable body of which he was a member.

DR. I. E. OATMAN, TREASURER, in account with CALIFORNIA STATE MEDICAL SOCIETY, CR.

1878.			1878.		
April 16.....	To balance brought forward	$653 84	April 30.....	By cash paid Dr. Tyrrell, sundries, as per vouchers	$142 85
April 30.....	To cash per Dr. Tyrrell—dues.....	361 00	May 3.....	By cash, Bancroft & Co., printing Med. Laws.....	56 00
May 8.....	To cash per Dr. Tyrrell—dues.....	54 00	May 8.....	By cash, rent of hall and gas at San Jose...	45 00
July 1.....	To cash per Dr. Tyrrell—dues.....	250 00	May 8.....	By cash, Mercury Co., San Jose, advertising and printing.....	9 00
Oct. 3.....	To cash per Dr. Tyrrell—dues.....	95 00	June 21	By cash, H. Gibbons per C. M. Bates for Board of Ex.....	100 00
Oct. 3.....	To cash per Dr. Tyrrell—sale transactions.	3 00	July 1.....	By cash, Dr. Tyrrell, sundries, as per vouchers	31 23
1879.			Oct. 1.....	By cash, R. B. Cole, bill of A. Kuner...$54 Amount still in Cole's hands..... 19	73 00
April 13.....	To cash per Dr. Tyrrell—dues.....	65 00	Oct. 11.....	By cash, Crocker & Co., printing transactions	430 26
			Oct. 3.....	By cash, Dr. Tyrrell, sundries, as per vouchers	21 40
			Oct. 5.....	By cash, E. Bosqui & Co., lithographing and engrossing diplomas.....	417 00
			Oct. 24.....	By cash, C. M. Bates for Haight & Taylor.	50 00
			1879.		
			April 13.....	By cash, Weaver for printing.....	2 50
			April 13.....	By cash, Dr. Tyrrell as per voucher.....	5 60
		$1,481 84			$1,383 84
			April 16.....	By balance.	98 00
April 16.....	To balance on hand.....	$98 00			$1,481 84

ANNUAL REPORT OF C. M. BATES, M. D., Treasurer of Board of Examiners of the Medical Society of the State of California, for Year ending April, 1879.

Dr.		1878.	Cr.	
Rec'd from Secretary for applicants	$118 00	April 15	By cash due Treasurer	$30 80
Rec'd additional for applicants	350 00	May 28	L. Robinson, traveling expenses	47 00
Rec'd from Dr. Oatman, Treasurer State Medical Society	100 00	May 28	J. F. Montgomery, traveling expenses	15 00
Rec'd from Dr. Montgomery	8 60	May 28	J. B. Cox, traveling expenses	14 00
Rec'd additional for applicants from Sec'y	30 00	May 28	Sacramento Record-Union	8 00
		May 28	San Francisco Bulletin Co	10 50
		June 11	C. A. Murdock, printing	1 75
		July 1	A. L. Bancroft, sundries	12 50
		July 8	Secretary, as per vouchers	15 65
		July 29	Express Newspaper and Printing Co	7 50
		Aug. 9	J. B. Cox, traveling expenses	6 00
		Oct. 25	J. B. Cox, traveling expenses	6 50
		Nov. 6	Bancroft & Co.'s bill	2 50
		Nov. 18	Bancroft & Co.'s bill	20 00
		Nov. 25	H. P. Babcock's bill	15 75
		Nov. 25	J. F. Montgomery's bill	11 00
		Nov. 25	J. B. Cox, traveling expenses	6 50
		1879.		
		Jan. 7	J. B. Cox, traveling expenses	7 00
		Jan. 7	P. A. Espina's bill	15 00
		March 7	J. B. Cox, traveling expenses	6 50
		Feb. 18	J. B. Cox, traveling expenses	6 50
		March 12	H. Gibbons, Secretary, sundry expenses	8 35
		April 2	J. B. Cox, traveling expenses	6 00
		April 2	J. F. Montgomery, traveling expenses	10 50
		April 15	A. L. Bancroft's bill	7 50
		April 15	A. L. Bancroft's bill	8 00
		April 15	C. M. Bates, sundry expenses	20 00
		April 15	A. L. Bancroft, sundry expense bill	1 00
		April 15	P. A. Espina, as per bill	6 00
		April 15	H. Gibbons, Jr., Secretary, salary	100 00
	$606 60		Balance cash on hand	173 30
To balance cash on hand	$173 30			$606 60

CONSTITUTION AND BY-LAWS OF THE SOCIETY.

ARTICLE I.

TITLE OF THE SOCIETY.

SECTION 1. This institution shall be styled "THE MEDICAL SOCIETY OF THE STATE OF CALIFORNIA."

ARTICLE II.

MEMBERS.

SECTION 1. The members of this Society shall consist of delegates from permanently organized local medical societies, ordinary and honorary members, who shall collectively represent and have cognizance of the common interests of the medical profession in the State of California.

SEC. 2. Each delegate from a local society shall hold his appointment for one year, and until another is appointed to succeed him, and shall participate in all the business and affairs of the Society on paying the usual dues of five dollars.

SEC. 3. Each local society shall have the privilege of sending to this Society one delegate for every five of its regular resident members, and one for every additional fraction of more than one-half that number of its members.

SEC. 4. Qualifications for membership shall consist of a good primary and medical education, attested by a diploma from some known medical school of good repute, and a good professional and moral standing in the community in which such candidate may reside. A license from the Board of Examiners of this Society shall also be required of every candidate.

Ordinary members—Every physician who shall properly satisfy the Board of Censors by the exhibition of his diploma that he possesses the necessary qualifications as prescribed, may become an ordinary member of this Society,

and all those who may hereafter serve in the capacity of delegates to the Society, together with such other persons as may receive the appointment by unanimous vote, shall thereby become permanent members; *provided*, that no physician shall be considered eligible to membership who may reside within any location where there is a local medical society, and who has failed to become a member thereof, unless there be some special reason assigned for his election; and no voucher or vouchers of any member or members shall be taken as satisfying evidence of any applicant's qualification for membership.

SEC. 5. Honorary members shall consist of such distinguished *savants* and others as may be deemed worthy of the compliment. They shall receive their appointment by a vote of the Society, and upon a motion of some member present.

SEC. 6. Each individual, prior to taking his seat as a member of the Society, must sign the Constitution, inscribing his name and address in full, specifying in what capacity he attends, and if a delegate, the local society which he represents. Every member shall be entitled to the diploma of the Society, to which shall be attached the seal* of the Society, and the signature of the President and Permanent Secretary.

SEC. 7. The seal of this Society shall always be kept by the Permanent Secretary.

ARTICLE III.

OFFICERS.

SECTION 1. The officers of the Society shall be President, four Vice Presidents, one Permanent and two Assist-

* The seal that has been adopted shows enough of the beautiful design of the seal of the State to declare the common origin of the Medical Society and of the State of California, while the cock that was wont to be sacrificed to Esculapius, representing "vigilance," is crowing out 1870, the year of reorganization; and the serpent, emblematic of "sagacity and long life," lies entwined around the doctor's staff at his feet. Thus Vigilance and Sagacity typify the qualities a physician should possess under the direction of Minerva.

ant Secretaries, a Treasurer, and a Board of Censors of five members. These officers shall be nominated by a committee of one member from each county represented, on the morning of the second day of the meeting, and be elected by ballot, except Permanent Secretary. Each officer shall hold his appointment for one year, and until another is elected to succeed him.

SEC. 2. The President shall preside at the meeting, preserve order, give a casting vote in case of a tie, and perform all other duties that custom and parliamentary usage may require. He shall organize and open the meeting next succeeding his election, by an address on some subject connected with medicine, or with the interests of the Society. He may also fill by appointment all vacancies that may occur from death or other causes.

SEC. 3. The Vice Presidents, when called upon, shall assist the President in the peformance of his duties, and during his absence, or at the request of the President, one of them shall officiate in his place.

SEC. 4. The Permanent Secretary shall reside in Sacramento, and shall authenticate the proceedings; give due notice of time of next meeting; shall serve as a member of Committee on Publication; shall preserve the archives and unpublished transactions of the Society; shall hold correspondence with other permanently organized societies, both domestic and foreign, and see that all the published transactions are promptly distributed to the members entitled to receive them. This officer shall not be subject to annual election, and shall not be removed except for cause shown.

SEC. 5. The Assistant Secretaries shall record the minutes, notify members of committees of their appointment, and of the duties assigned them; and, in the absence of the Permanent Secretary, one of them shall perform his duties.

SEC. 6. The Treasurer shall have immediate charge and management of the funds as a property of the Society, and hold them subject to the disposal of the Society. At each annual meeting he shall present a report, setting forth the

amount of moneys received, as well as the amount disbursed, and for what purpose.

SEC. 7. The Board of Censors shall examine the credentials of all candidates for admission to the Society, and if such credentials are found to conform with the requirements, as enacted in Article II of this Constitution, the Board of Censors shall recommend said applicants to the Society as suitable candidates for election.

ARTICLE IV.

MEETINGS.

SECTION 1. The regular meetings of the Society shall be held annually, and commence on the third Wednesday of April.

ARTICLE V.

STANDING COMMITTEES.

SECTION 1. The following Standing Committees, each composed of five members, of whom the first named is Chairman, shall be nominated at every annual meeting by the President elect, for the purpose of preparing and arranging business for each ensuing year, and for carrying into effect the orders of the Society not otherwise assigned, namely:

On Practical Medicine and Medical Literature.

On Surgery.

On Obstetrics.

On Medical Topography, Meteorology, Endemics, and Epidemics.

On Indigenous Botany and the Domestic Adulteration of Drugs.

On Public Hygiene and State Medicine.

On Histology and Microscopy.

On Mental Diseases and Medical Jurisprudence.

On Medical Education.

On Publication.

Of Arrangements.

On Prize Essays.

SEC. 2. The Committee on Practical Medicine and Medical Literature shall prepare an annual report on the more important improvements effected in this State in the management of individual diseases; the improvements and discoveries which may have been made in Anatomy, Physiology, General Pathology, Therapeutics, and Medical Jurisprudence.

SEC. 3. The Committee on Surgery shall prepare an annual report on all the important improvements in the management of surgical diseases effected in the State during the year, and as far as can be ascertained, the number of capital operations peformed, with their results.

SEC. 4. The Committee on Obstetrics shall prepare an annual report on the important improvements in the obstetrical art, and in the management of the diseases peculiar to women and children, effected in the State during the year, together with such remarks touching these subjects as they may think proper.

SEC. 5. The Committee on Medical Topography, Meteorology, Endemics, and Epidemics, shall prepare an annual report on the peculiarity of the soil and climate of the different sections of the State, with the diseases to which they are subject; also the endemics and epidemics which have prevailed throughout the State during the year.

SEC. 6. The Committee on Indigenous Botany and the Domestic Adulteration of Drugs shall prepare an annual report on the indigenous medical botany of the State of California, paying particular attention to such plants as are found to possess valuable medicinal qualities, and are not accurately described in standard works, and the localities where they are found. Also, to report on the quality of drugs brought to our market, with the view to correct the evils arising from the extensive introduction and sale of spurious and sophisticated articles.

SEC. 7. The Committee on Public Hygiene and State Medicine shall prepare an annual report on all subjects germane to this important branch of medical science.

SEC. 8. The Committee on Histology and Microscopy

shall report and demonstrate such valuable facts and discoveries, annually, bearing directly or indirectly on medicine and surgery, as they may think proper.

SEC. 9. Committee on Mental Diseases and Medical Jurisprudence. This committee shall report on all psychological questions, and on such matters appertaining to medical jurisprudence as in their judgment may be deemed advisable.

SEC. 10. The Committee on Medical Education shall prepare annual reports on the general condition of medical education in the State of California, as compared with the state of medical education in other States of the Union, noticing the several medical institutions of the State, their course of instruction, the practical requirements for graduating, the modes of examination for conferring degrees, and the reputed number of pupils and graduates at each during the year; together with such other matters as they may deem worthy of consideration in reference to medical education and the reputable standing of the profession.

SEC. 11. The Committee on Publication—of which the Permanent Secretary must constitute a part—shall have charge of preparing for the press, and of publishing and distributing, such of the proceedings, transactions, and memoirs of the Society, as may be deemed worthy to be published.

SEC. 12. The Committee of Arrangements shall be composed of members residing in the place at which the Society is to hold its annual meeting, and shall be required to provide suitable accommodations for the meeting, to report on the credentials for membership, and to receive and announce all voluntary communications made to the Society.

SEC. 13. In order to afford the Committee on Medical Topography, Meteorology, Endemics and Epidemics, and on Indigenous Botany and the Domestic Adulteration of Drugs, material for their several annual reports, it shall be the duty of the several auxiliary societies in the State to transmit to the Chairman of these respective committees, on or before the first day of March of each year, a special

SEC. 2. The Committee on Practical Medicine and Medical Literature shall prepare an annual report on the more important improvements effected in this State in the management of individual diseases; the improvements and discoveries which may have been made in Anatomy, Physiology, General Pathology, Therapeutics, and Medical Jurisprudence.

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SEC. 7. The Committee on Public Hygiene and State Medicine shall prepare an annual report on all subjects germane to this important branch of medical science.

SEC. 8. The Committee on Histology and Microscopy

their respective duties, conduct their correspondence, and procure the material for the completion of their stated annual reports; for the encouragement of scientific investigations by prizes and awards of merit, and for such other purposes as the Society may from time to time direct.

SEC. 3. Any member who shall fail to pay his annual dues for two successive years, unless absent from the State, or for other reasonable causes, shall be dropped from the roll of members, after having been notified by the Permanent-Secretary of the forfeiture of such membership; and no member so dropped shall be reinstated in his membership until he shall have paid all arrears due by him.

ARTICLE VIII.

DELEGATES TO THE NATIONAL MEDICAL ASSOCIATION.

SECTION 1. The Society shall annually appoint, to represent it in the American Medical Association, one delegate for every ten members, and one for every additional fraction of more than one-half this number, whose certificates of appointment shall be signed and duly authenticated by the President and Secretary.

ARTICLE IX.

CODE OF ETHICS.

SECTION 1. The Code of Medical Ethics recommended by the National Medical Association, held in Philadelphia in May, 1847, having been approved and adopted by this Society, shall have the full force and effect of any Article of this Constitution.

ARTICLE X.

DISCIPLINE OF MEMBERS.

SECTION 1. Any violation of the provisions of the Constitution or of the Code of Ethics adopted by this Society, shall be referred to the Board of Censors for adjudication, from whose decision an appeal may be taken to the Society. Such violation being reported by the Board of Censors to

report embracing such information touching their particular localities as may enable said committees to make full reports on all subjects committed to them.

SEC. 14. The Standing Committees shall constitute sections, after the manner of the American Medical Association, to whom all papers shall be referred upon the first day of the session, and who shall report to the Society those papers that seem of sufficient interest for reference to the Committee on Publication; also those that seem of sufficient importance to be read before the Society, by title, abstract or *in extenso*, upon the second day of the meeting.

ARTICLE VI.

VOLUNTARY CONTRIBUTIONS.

SECTION 1. After the reading and discussion of the annual reports, or at any other period during the meeting of the Society, by the vote of two-thirds of the members present, it shall be the privilege of any member to present to the consideration of the Society, either orally or in writing, communications on medical subjects, reports of interesting cases, or such other matters as may be deemed of interest to the profession, which communications may on motion be referred to the Committee on Publication, and if deemed by them worthy of preservation, shall appear among the proceedings.

ARTICLE VII.

FUNDS AND APPROPRIATIONS.

SECTION 1. The funds of this Society shall be raised by individual voluntary contributions, by the sale of its publications, and by an annual tax of five dollars on each member of the Society, on the payment of which he shall be entitled to a copy of all the publications for the year.

SEC. 2. The funds thus raised may be appropriated for defraying the expenses of the annual meetings; for publishing the proceedings, memoirs, and transactions of the Society; for enabling the Standing Committees to fulfill

ORDER OF BUSINESS.

The following order of business is presented as a by-law of the Society, which shall at all times be subject to a vote of a majority of all the members in attendance, and, except temporarily suspended, shall be as follows:

I. Organization of meeting.
II. Report of the Committee of Arrangements on the credentials of members after the latter have registered their names and addresses, etc.
III. The calling of the roll.
IV. The reception of members not present at the opening of the meeting, and the reading of notes from absentees.
V. Reception of members by invitation.
VI. The reading and consideration of the stated annual reports from the Standing Committees.
VII. Reading and discussion of voluntary contributions.
VIII. The election of officers and place of annual meeting, and appointments by the President elect to fill the Standing Committees.
IX. Resolutions introducing new business, and instructions to the Standing Committees.
X. Unfinished and miscellaneous business.
XI. Reading of the minutes of the session about to conclude.
XII. Adjournment.

the Society, and established to the satisfaction of a majority of the members, the individual or individuals thus offending shall be excommunicated, and deprived of all the privileges of membership.

SEC. 2. The Society shall have jurisdiction in all cases of appeals taken from auxiliary societies, in which event their decision shall be final.

ARTICLE XI.

AMENDMENTS AND ALTERATIONS.

SECTION 1. No amendment or alteration shall be made in any of the Articles of this Constitution, except at the annual meeting next subsequent to that at which such alteration or amendment may have been proposed, and then only by the concurrence of two-thirds of the members in attendance.

reference to the Committee on Publication; also those that seem of sufficient importance to be read before the society, by title, abstract, or in extenso, upon the second day of meeting.—[1874, April 21st.]

ARTICLE II, SECTION 4. After the word "Censors," add "by the exhibition of his diploma;" and after the word "election," add, "and no voucher or vouchers of any member or members shall be taken as satisfactory evidence of any applicant's qualification for membership."—[1875, April 19th.]

ARTICLE II, SECTION 4. "Shall be entitled to permanent membership," to read, "shall thereby become permanent members."—[1875, April 19th.]

ARTICLE III, SECTION 1. After the word "ballot," add "except Permanent Secretary."—[1877, April 18th.]

ARTICLE III, SECTION 4. After "them," add, "this officer shall not be subject to annual election, and shall not be removed except for cause shown."—[1877, April 18th.]

ARTICLE II, SECTION 6. After the word "the" be added "signature of the President and Permanent Secretary."—[1878, April 18th.]

ARTICLE II, SECTION 4. A license from the Board of Examiners of this society shall also be required of every candidate.—[1878, April 18th.]

AMENDMENTS TO CONSTITUTION.

ARTICLE II, SECTION 4. Provided, that no physician be elected a member of this society from a county having a local society, unless he be a member of the same, or unless there be some special reason for his election.—[1872, Oct. 10th.]

ARTICLE IV, SECTION 1. Amended by striking out in the second line the words "second Wednesday in October," and inserting "second Wednesday in April," as the time for holding the annual meeting of the Society.

ARTICLE III, SECTION 4. Making it obligatory upon the Permanent Secretary to reside in Sacramento, striking out that clause requiring the meetings of the society to be held in Sacramento, leaving the choice of such place with each session of the association.—[1873, April 10th.]

ARTICLE IV, SECTION 1. Changing the time of meeting to the third Wednesday in April.—[1873, April 10th.]

ARTICLE VII, SECTION 3. Any member who shall fail to pay his annual dues for two consecutive years, unless absent from the State, or for other reasonable causes, shall be dropped from the roll of members, after having been notified by the Permanent Secretary of the forfeiture of his membership; and no member so dropped shall be reinstated in his membership until he shall have paid all arrears due by him.—[1874, April 21st.]

ARTICLE V, SECTION 14. That the Standing Committees shall constitute sections, after the manner of the American Medical Association, to whom all papers shall be referred upon the first day of the session, and who shall report to the society those papers that seem of sufficient interest for

of a single member shall be considered sufficient evidence of his qualifications.—[1871, Oct. 12th.]

The Secretary was instructed to notify the committees of their appointment as soon as made by the President; also, that the Chairman of each committee be requested to notify each member of said committee of his appointment.—[1872, Oct. 10th.]

Resolved, That the Committee on Revision of the Constitution and By-Laws be instructed to introduce into the code a law requiring the reading of the minutes of each session at the conclusion of the same.—[1873, Oct. 10th.]

Resolved, That a Permanent Secretary be elected for the society, who shall be paid for his services, and that an additional Assistant Secretary shall be appointed each year by the President at the place of the future meeting. The salary of the Permanent Secretary to be fixed by the vote of the society.—[1873, Oct. 10th.]

Resolved, That the Permanent Secretary be allowed a salary of one hundred dollars.—[1874, April 10th.]

Resolved, That the Chairman of the various Standing Committees hereafter present a synopsis of their several reports; the reading of which will be considered as fulfilling the provisions of the Constitution.—[1874, April 10th.]

Resolved, That the Publishing Committee be instructed to make out an alphabetical list of the members, together with their places of residence, for the society, and have the same published in the next volume of transactions.—[1874, April 10th.]

Resolved, That the President and Secretary be authorized to issue credentials to any member of this society who desires to attend the meeting of the American Medical Association as a delegate.—[1874, April 10th.]

Resolved, That the Secretary be authorized to issue credentials to any member of the society desirous of visiting any foreign medical association.—[1874, April 10th.]

RESOLUTIONS RELATING TO THE GOVERNMENT OF THE SOCIETY.

Resolved, That a committee of three be appointed by the Chair, to secure the passage of an amendment to the laws organizing the State Board of Health, to enforce the registration of deaths, births, etc., to enable the Board of Health to secure more complete statistics in relation thereto.—[1870, Oct. 20th.]

Resolved, That a committee be appointed by the Chair, to present to this society, at its next meeting, any amendment which may be advisable, in their judgment, to the present law regulating the registration of births and deaths.—[1870, Oct. 20th.]

Resolved, That the fact of a doctor of medicine being engaged in the manufacture and sale of any secret or patent medicine, or in any way promoting the use of them, shall render him ineligible as a member of this society.—[1871, Oct. 12th.]

Resolved, As a sense of this society, that the subject of medical ethics should receive a larger share of attention in medical universities and colleges of the country, to the end that the true principles inculcated therein may be more thoroughly impressed upon the minds of the students, and, in consequence, more faithfully and scrupulously observed by them in their subsequent professional career.—[1871, Oct. 12th.]

Resolved, That the Board of Censors shall recommend no candidate for membership until he shall have presented his diploma or other evidence of being a graduate of a recognized school, and of good standing; and that no voucher

shall be stricken from the roll of the same.—[1877, April 18th.]

It was ordered that the actual expenses incurred by the Board of Examiners of this society be paid by the Treasurer of the society; who shall also pay such expenses of litigation as may be deemed necessary and expedient in order to carry out the objects of the law under which they were elected.—[1877, April 18th.]

Resolved, That the Publication Committee be requested to insert in the proceedings, in a collective form, all the changes in the Constitution, and the resolutions relating to the government of the society, which have been adopted from time to time.—[1878, April 17th.]

Resolved, That the several local medical societies and Boards of Health throughout the State be requested to urge their respective city, county, and town authorities to establish ordinances or laws requiring all practitioners of medicine within the limits of their respective jurisdictions to report in writing to their respective Boards of Health, all cases of the more dangerous epidemic diseases coming under their professional observation.—[1878, April 17th.]

Resolved, That the Secretary of the Board of Examiners be instructed to communicate with the local medical societies, and urge that they prosecute violations of the medical law, and that they report progress from time to time to the Board of Examiners.—[1878, April 17th.]

Resolved, That this society appeal to all ministers of the gospel throughout the State, and urge them to use their influence in all proper and available ways, to discourage the inhuman, degrading, and extensively prevailing practice of feticide.—[1878, April 17th.]

Resolved, Whereas, in consequence of the silence of the profession, the regular practice of medicine is very generally characterized as *allopathy* by the secular press, by medical dogmatists and sectarians, and by the public at large, and the epithet, *allopath*, applied to its individual

Resolved, That this society recognizes the diplomas of the Toland College, and places its graduates who are now members of this society, or who may hereafter apply for membership, on the same footing as the graduates of other regular schools.—[1875, April 21st.]

Resolved, That the original founders of the society are permanent members and liable to yearly dues, and that all members once admitted are liable to yearly dues, whether simply as a delegate or otherwise.—[1875, April 21st.]

Resolved, That a committee of five members be appointed for the purpose of promoting the organization of county or district societies.—[1875, April 21st.]

Resolved, That the San Francisco Medical Benevolent Society be and the same is hereby recognized as a local medical society within the meaning of the Constitution of the State Medical Society, which requires its members to belong to a local medical society, when there is one where they reside.—[1875, April 19th.]

On motion it was ordered that the actual expenses incurred by the Board of Examiners be paid by the Treasurer of the society.—[1875, April 19th.]

Resolved, That this society endorse the views of the President as to the importance of the creation of local Boards of Health in every incorporated city and town in the State; and recommend the invocation of legislative aid in the promotion of so desirable an object.—[1877, April 18th.]

Resolved, That the practice of making annual contracts with individuals or societies for medical attendance is not only derogatory to the dignity of the profession, but is an actual violation of the code of medical ethics adopted by the American Medical Association, as well as the code adopted by this society.—[1877, April 18th.]

Resolved further, That the name of any member of this association who shall hereafter make or renew a contract for annual medical attendance upon individuals or societies,

shall be stricken from the roll of the same.—[1877, April 18th.]

It was ordered that the actual expenses incurred by the Board of Examiners of this society be paid by the Treasurer of the society; who shall also pay such expenses of litigation as may be deemed necessary and expedient in order to carry out the objects of the law under which they were elected.—[1877, April 18th.]

Resolved, That the Publication Committee be requested to insert in the proceedings, in a collective form, all the changes in the Constitution, and the resolutions relating to the government of the society, which have been adopted from time to time.—[1878, April 17th.]

Resolved, That the several local medical societies and Boards of Health throughout the State be requested to urge their respective city, county, and town authorities to establish ordinances or laws requiring all practitioners of medicine within the limits of their respective jurisdictions to report in writing to their respective Boards of Health, all cases of the more dangerous epidemic diseases coming under their professional observation.—[1878, April 17th.]

Resolved, That the Secretary of the Board of Examiners be instructed to communicate with the local medical societies, and urge that they prosecute violations of the medical law, and that they report progress from time to time to the Board of Examiners.—[1878, April 17th.]

Resolved, That this society appeal to all ministers of the gospel throughout the State, and urge them to use their influence in all proper and available ways, to discourage the inhuman, degrading, and extensively prevailing practice of feticide.—[1878, April 17th.]

Resolved, Whereas, in consequence of the silence of the profession, the regular practice of medicine is very generally characterized as *allopathy* by the secular press, by medical dogmatists and sectarians, and by the public at large, and the epithet, *allopath*, applied to its individual

members through ignorance to a great extent that the name was introduced by Hahnemann to give distinction to his homœopathic dogmas; therefore,

Resolved, That we, the Medical Society of the State of California, in unison with the regular profession throughout the world, do hereby utterly repudiate the name of *allopath*, as applied to ourselves, or *allopathy*, as applied to our practice; the regular profession of medicine, knowing no sectarianism in medicine, practicing no exclusive dogma, or in any way restricting its legitimate members in the treatment of their patients, but, on the contrary, giving them the fullest latitude to use any remedy or any means whereby the welfare of the sick may be promoted, their health insured, or their lives prolonged.—[1879, April 16th.]

Resolved, That the Medical Society of the State of California respectfully request the American Medical Association, at its next annual meeting, to memorialize the Congress of the United States to pass a law requiring the proprietors of all patent or proprietary medicines, offered for sale in the United States of America, on and after July 1st, 1880, to accompany each bottle, box, and package of such medicines with a printed label or circular, plainly stating all the medicinal and other substances contained therein, and their relative proportions; or to adopt some form of legislation that will accomplish the purpose herein contemplated.—[1879, April 17th.]

STANDING COMMITTEES

OF THE STATE MEDICAL SOCIETY FOR 1879-80.

ON PRACTICAL MEDICINE—James Simpson, San Francisco; C. K. Farley, Gilroy; E. T. Barber, Oakland; Benj. Cory, San Jose; C. A. Kirkpatrick, Redwood City.

ON SURGERY—Jas. Murphy, San Francisco; C. G. Kenyon, San Francisco; A. B. Caldwell, Marysville; C. E. Blake, San Francisco; J. S. Adams, Oakland.

ON OBSTETRICS—D. B. Dean, San Francisco; H. A. DuBois, San Rafael; M. B. Pond, Napa; C. H. Allen, Centerville; C. B. Bates, Santa Barbara.

ON HISTOLOGY AND MICROSCOPY—W. S. Thorne, San Jose; W. R. Cluness, Sacramento; H. Gibbons, Jr., San Francisco; R. A. McLean, San Francisco; H. S. Pike, Sanel.

ON MEDICAL TOPOGRAPHY, ENDEMICS, ETC.—Thos. Ross, Woodland; L. R. Webster, Grass Valley; A. Fine, Watsonville; V. Newmark, Benicia; M. S. McMahan, San Jose.

ON INDIGENOUS BOTANY—W. P. Gibbons, Alameda; J. N. Mussy, La Porte; H. Neal, Hollister; J. H. Crumpton, Lakeport; M. C. Parkinson, Antioch.

ON MENTAL DISEASES—F. L. Dozier, Napa; F. W. Hatch, Jr., Napa; Robt. Caldwell, San Jose; A. H. Agard, Oakland; J. H. Clark, Azura.

ON PUBLIC HYGIENE AND STATE MEDICINE—M. M. Chipman, San Jose; J. B. Trembley, Oakland; J. F. Montgomery, Sacramento; F. W. Todd, Stockton; N. Williams, Richland.

ON MEDICAL EDUCATION—J. M. Briceland, Shasta; A. A. O'Neil, San Francisco; G. W. Davis, Chico; P. M. Lusson, San Jose; W. F. McNutt, San Francisco.

*ON PRIZE ESSAYS—Luke Robinson, Colusa; J. H. Carothers, Martinez; J. B. Cox, San Jose; F. C. Durant, Folsom; I. Oatman, Sacramento.

OF ARRANGEMENTS—R. H. Plummer, San Francisco; H. Gibbons, Jr., San Francisco; Jas. Simpson, San Francisco; A. Barkan, San Francisco; O. O. Burgess, San Francisco.

ON PUBLICATION—G. G. Tyrrell, Sacramento; F. W. Hatch, Sr., Sacramento; G. L. Simmons, Sacramento; A. B. Nixon, Sacramento; G. A. Shurtleff, Stockton.

SPECIAL COMMITTEES.

ON GYNÆCOLOGY—C. M. Bates, San Francisco; H. M. Fisk, San Francisco; Jas. F. Foulkes, Oakland; F. Delmont, Ventura; C. A. Buckel, Oakland.

ON OPHTHALMOLOGY—A. Martinache, San Francisco; A. M. Wilder, San Francisco; A. Barkan, San Francisco; A. P. Whittell, Sacramento; A. Jump, Downieville.

ON NECROLOGY—H. Gibbons, Sr., San Francisco; A. B. Stout, San Francisco; C. P. Chesley, San Francisco; E. B. Robertson, San Andreas; C. M. Fenn, San Diego.

ON DISEASES OF WOMEN AND CHILDREN—O. O. Burgess, San Francisco; E. P. Stone, Oakland; E. Grisselle, San Francisco; H. N. Rucker, Merced; A. R. Becker, Berkeley.

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* A prize of fifty dollars is offered for best Essay on any subject appertaining to Medical Science.

CATALOGUE OF OFFICERS AND MEMBERS

OF THE

Medical Society of the State of California.

PRESIDENTS AND VICE PRESIDENTS OF THE STATE MEDICAL SOCIETY.

1856.

SACRAMENTO.

President,

B. F. Keene.....El Dorado.

Vice Presidents,

E. S. Cooper.....San Francisco.
S. Langdon.....San Joaquin.
D. W. C. Rice.....Yuba.
R. K. Reid.....San Joaquin.
F. W. Hatch.....Sacramento.

1857.

SACRAMENTO.

President,

H. Gibbons.....San Francisco.

Vice Presidents,

R. H. McDaniels.....Yuba.
O. Harvey.....El Dorado.
A. J. Spencer.....Santa Clara.
R. B. Ellis.....Sacramento.
A. B. Stout.....San Francisco.

1858.

SAN FRANCISCO.

President,

A. B. Stout .....San Francisco.

Vice Presidents,

J. P. Whitney.....San Francisco.
C. N. Ege.....Yuba.
A. J. Sepncer.....San Jose.
I. E. Oatman.....Sacramento.
J. Morrison.....San Francisco.

1859.

SACRAMENTO.

President,

R. B. Ellis.....San Francisco.

Vice Presidents,

J. F. McLane.....Yuba.
H. W. Harkness.....Sacramento.
O. Harvey.....El Dorado.
W. G. Deal.....Alameda.
J. F. Montgomery .....Sacramento.

1860.

President,

Isaac Rowell.....San Francisco.

Vice Presidents,

Isaac S. Titus.....El Dorado.
C. A. Kirkpatrick.....Solano.
R. B. Cole.....San Francisco.
Ira E. Oatman.....Sacramento.

Corresponding Secretary.

*E. S. Cooper.....San Francisco.

*Dr. Cooper was also elected one of the Vice Presidents, but declined—preferring the position of Corresponding Secretary.

Recording Secretaries.

G. Taylor.....Sacramento.
G. L. Simmons.....Sacramento.

Treasurer,

H. W. Harkness .....Sacramento.

1861.

President,

Samuel F. Hamm.....El Dorado.

Vice Presidents,

B. H. Pierson .....Sacramento.
G. L. Simmons.....Sacramento.
C. A. Kirkpatrick.....Solano.
B. A. Sheldon.....San Francisco.
J. G. Tucker.....San Francisco.

Corresponding Secretary,

E. S. Cooper.....San Francisco.

Recording Secretaries,

G. Taylor.....Sacramento.
Isaac S. Titus.....El Dorado.

Treasurer,

H. W. Harkness.....Sacramento.

1870.

SAN FRANCISCO.

[Reorganization of State Medical Society.]

President,

T. M. Logan .....Sacramento.

Vice Presidents,

S. R. Harris .....San Francisco.
T. H. Pinkerton .....Alameda.
J. L. Ord .....Santa Barbara.
G. A. Shurtleff.....San Joaquin.
D. B. Hoffman.....San Diego.

1871.

SACRAMENTO.

President,

H. Gibbons, Sr.....San Francisco.

Vice Presidents,

G. A. Shurtleff.....San Joaquin.
F. W. Hatch.....Sacramento.
F. W. Todd.....San Joaquin.
J. F. Montgomery .....Sacramento.

1872.

OAKLAND.

President,

G. A. Shurtleff.....San Joaquin.

Vice Presidents,

T. H. Pinkerton.....Alameda.
J. J. Franklin .....Sonora.
W. F. Cheney.....Butte.
W. F. Hays .....San Luis Obispo.

1873.

SACRAMENTO.

President,

T. H. Pinkerton .....Alameda.

Vice Presidents,

J. M. Brown.....Solano.
C. A. Kirkpatrick.....San Mateo.
F. W. Hatch.....Sacramento.
H. M. Briggs.....Santa Barbara.

Permanent Secretary,

G. G. Tyrrell.....Sacramento.

1874-5.

SAN FRANCISCO.

President,

J. M. Brown, U. S. N.....Solano.

Vice Presidents,

A. B. Nixon.....Sacramento.
W. F. Cheney.....Butte.
Martin Baker.....Tulare.
R. K. Reid.....San Joaquin.

Permanent Secretary,

G. G. Tyrrell.....Sacramento.

1875-6.

SAN FRANCISCO.

President,

A. B. Nixon.....Sacramento.

Vice Presidents,

W. F. Cheney.....Butte.
H. H. Toland.....San Francisco.
W. R. Cluness.....Sacramento.
H. S. Orme.....Los Angeles.

Permanent Secretary,

G. G. Tyrrell.....Sacramento.

1876-7.

SAN FRANCISCO.

President,

Wm. Fitch Cheney.....Chico.

Vice Presidents,

B. D. Dean .....San Francisco.
N. S. Hamlin.....Yuba City.
M. B. Pond.....Napa.
F. W. Todd.....Stockton.

Permanent Secretary,

G. G. Tyrrell.....Sacramento.

1877-8.

SAN JOSE.

President,

Washington Ayer.....San Francisco.

Vice Presidents,

L. C. Lane.....San Francisco.
A. W. Saxe.....Santa Clara.
J. M. Briceland .....Shasta.
Thomas Ross.....Woodland.

Permanent Secretary,

G. G. Tyrrell.....Sacramento.

1878-9.

SAN FRANCISCO.

President,

H. S. Orme.....Los Angeles.

Vice Presidents,

A. W. Saxe .....Santa Clara.
J. M. Briceland.....Shasta.
James Simpson.....San Francisco.
G. L. Simmons .....Sacramento.

Permanent Secretary,

G. G. Tyrrell.....Sacramento.

1879-80.

SAN FRANCISCO.

President.

A. W. Saxe.....Santa Clara.

Vice Presidents.

F. W. Todd.....Stockton.
J. M. Briceland.....Shasta.
C. G. Kenyon.....San Francisco.
W. A. Washington.....Merced.

Permanent Secretary.

G. G. Tyrrell.....Sacramento.

Assistant Secretaries.

Thos. Ross.....Woodland.
F. W. Hatch, Jr.....Napa.

Treasurer.

Ira E. Oatman.....Sacramento.

Board of Censors.

C. N. Ellinwood.....San Francisco.
C. E. Blake.....San Francisco.
P. Wheeler.....Oakland.
G. L. Simmons.....Sacramento.
C. A. Kirkpatrick.....Redwood City.

State Board of Examiners.

C. M. Bates.....San Francisco.
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C. Cushing.....Oakland.
R. H. Plummer.....San Francisco.
Jas. Simpson.....San Francisco.
W. Ayer.....San Francisco.
A. H. Agard.....Oakland.

Alternates.

G. A. Shurtleff.....Stockton.
H. N. Rucker.....Merced.
Thos. Kelly.....San Jose.

ORDINARY MEMBERS.

[Those who have an obelisk (†) prefixed to their names are dead.]

Adams, J. S.....Oakland.
Agard, A. H.....Oakland.
Allen, C. H.....Centreville.
Anthony, A. G.....Oakland.
Ayer, W.....San Francisco.
†Babcock, H. P.....Oakland.
Baker, Martin.....Visalia.
Baldwin, H. S.....San Francisco.
Bamford, Wm.....East Oakland.
Barber, E. T.....Oakland.
Bard, C. L.....San Francisco.
Barkan, A.....San Francisco.
Bates, C. B.....Santa Barbara.
Bates, C. M.....San Francisco.
Becker, A. R.....Berkeley.
Belinge, F. A. A.....San Francisco.
Bell, W. T.....Winters.
Blake, C. E.....San Francisco.
Blake, Jas. W.....San Francisco.
Briceland, J. M.....Shasta.
Briggs, H. H.....Sacramento.
Brigham, C. B.....San Francisco.
Brinkerhoff, S. B.....Santa Barbara.
Brown, C. Blake.....San Francisco.
Brown, J. M., U. S. N.....Mare Island.
†Brown, James A.....Sutter Creek.
Brownell, E. A. V.....Los Angeles.
Bruner, W. H.....San Francisco.
Buckel, C. Annette.....Oakland.
Bucknall, G. J.....San Francisco.

Bucknell, M. E.....San Francisco.
Burdick, J. L.....Oakland.
Burgess, O. O.....San Francisco.
Cachot, W. A.....San Francisco.
Caldwell, A. B.....Marysville.
†Caldwell, A. B.....Santa Clara.
Caldwell, Robert.....San Jose.
†Campbell, S. D.....Suisun.
Carothers, J. H.....Martinez.
Carr, E. S.....Oakland.
†Chamberlin, P.....San Francisco.
†Chase, George C.....Downieville.
Cheney, William Fitch.....Chico.
Chesley, C. P.....San Francisco.
Chipman, M. M.....San Jose.
Chismore, George.....San Francisco.
Christie, J. B.....Petaluma.
Clark, Asa.....Stockton.
Clark, J. H.....Azusa.
Clark, B. F.....Chico.
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Cochrane, A. H.....San Jose.
Cole, R. Beverly.....San Francisco.
Coleman, C. S.....San Leandro.
Coleman, F. W.....Napa.
Cory, Benjamin.....San Jose.
Cox, J. B.....San Jose.
Crane, J. H.....Petaluma.
†Crook, John T.....San Francisco.
Crumpton, H. J.....Lakeport.
Curless, Wm.....Truckee.
Curran, M. K.....San Francisco.
†Curtis, E. M.....Sacramento.
Cushing, Clinton.....Oakland.
Davis, G. W.....Chico.
Dean, Benjamin D.....San Francisco.
Delmont, F.....Ventura.
Dennis, S. W.....San Francisco.

DeWitt, Thos. B.....San Francisco.
Dozier, Franklin L.....Napa.
Dubois, A. S.....San Leandro.
DuBois, H. A.....San Rafael.
Durant, F. C.....Folsom.
Dutton, G. W.....Tomales.
Ellinwood, C. N.....San Francisco.
Farley, C. K.....Gilroy.
Fenn, C. M.....San Diego.
Ferrer, H.....San Francisco.
Fine, A.....Watsonville.
Fiske, Henry M.....San Francisco.
Fiske, H. W.....Quincy.
Flint, Joseph.....Tehama.
Follingsbee, E. A.....San Francisco.
Foley, W. L.....Oroville.
Foote, Erastus N.....Lockford.
Foulkes, J. F.....Oakland.
†Franklin, J. J.....Sonora.
Freeman, G. M.....Visalia.
Gardner, Mathew.....Davisville.
†Gates, H. S.....San Francisco.
Gibbons, Henry.....San Francisco.
Gibbons, Henry, Jr.....San Francisco.
Gibbons, Wm. P.....Alameda.
Gordon, E. A.....Dixon.
Grady, J. F.....Weaverville.
Green, T.....San Francisco.
Grisselle, Eliza.....San Francisco.
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Hardy, B. F.....San Francisco.
Harris, E. B.....Virginia City.
†Harris, S. R.....San Francisco.
Harvey, O.....Galt.
†Harville, J. W.....San Francisco.
Hatch, F. W.....Sacramento.

Hatch, F. W., Jr.....Napa.
Hewston, George.....San Francisco.
Hirschfelder, J. O.....San Francisco.
Hodgdon, W. H. A.....San Francisco.
Holmes, Stillman.....Santa Cruz.
Hopkins, A. St. George L.....Oakland.
Huber, David.....Gilroy.
Hudson, A. S.....Stockton.
Hunt, R.....Nevada City.
Jackson, G. H.....Woodland.
Jackson, J. S.....Chico.
Jenkins, T. J.....San Jose.
Jones, William C.....Grass Valley.
Jump, Alemby.....Downieville.
Keane, G. B.....San Francisco.
Kelly, Thos.....San Jose.
Kenyon, C. G.....San Francisco.
Kesseler, A.....Volcano.
Kier, H. M.....Knight's Land'g.
Kirkpatrick, C. A.....Redwood City.
Lane, L. C.....San Francisco.
†Lasvignes, L.....Forest City.
†Logan, Thomas M.....Sacramento.
Lovelace, L. M.....Le Moore.
Leffler, John.....Pacheco.
Lucas, W. T.....Woodland.
Lusson, P. M.....San Jose.
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McMahan, M. S.....San Jose.
McMahan, John B.....San Jose.
McNutt, W. F.....San Francisco.
McQuesten, Chas.....San Francisco.
Mead, E. S.....San Jose.

Meares, J. L.....San Francisco.
†Mehring, A. B.....Visalia.
Miller, Chas. F.....Hill's Ferry.
Miller, P. B. McD.....Oroville.
†Millington, Jno.....San Francisco.
Montgomery, J. F.....Sacramento.
†Morse, Jno. F.....San Francisco.
Murphy, James.....San Francisco.
Murphy, R. W.....San Francisco.
Mussey, J. M.....La Porte.
Neal, H.....Hollister.
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Newmark, V.....Benicia.
Nichell, C. F. A.....Napa.
Nichols, H. L.....San Francisco.
Nixon, A. B.....Sacramento.
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O'Neil, A. A.....San Francisco.
O'Toole, M.....San Francisco.
Orme, H. S.....Los Angeles.
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Parkinson, M. C.....Antioch.
Parramore, E. L.....Woodland.
Paugh, W. J.....San Francisco.
Pawlicki, L.....San Francisco.
Payne, F. H.....Berkeley.
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Pietrzycki, M.....Rio Vista.
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Powers, G. H.....San Francisco.
Pond, M. B.....Napa.
Pratt, A. H.....Dixon.
Regensberger, A. E.....San Francisco.
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Reilay, John P.....Oakland.

Reinhart, M.....Berkeley.
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Robertson, E. B.....San Andreas.
Robertson, H. D.....Oakland.
Robinson, Luke.....Colusa.
Rodgers, L. O.....San Francisco.
Rogers, S. J. S.....Marysville.
Rogers, George H.....San Francisco.
Ross, Thos.....Woodland.
Rowell, Chas.....San Francisco.
Rucker, Hiram N.....Merced.
Ruggles, Chas. A.....Stockton.
Rupe, S. H.....Healdsburg.
Russell, W. A.....Visalia.
†Sage, C. T.....San Francisco.
Saxe, A. W.....Santa Clara.
Scott, Jno.....San Francisco.
Shafter, J. C.....Olema.
Shuey, Sarah I.....Berkeley.
Shurtleff, Benjamin.....Napa.
Shurtleff, G. A.....Stockton.
Simmons, G. L.....Sacramento.
Simonton, W. B.....Oakland.
Simpson, Jas.....San Francisco.
Smith, L. E.....La Porte.
Smith, W. F.....San Francisco.
Smith, Q. C.....Cloverdale.
Snider, T. A.....Sacramento.
Spillane, Jas.....San Francisco.
†Sproule, Samuel F.....Chico.
Stockton, E. A.....Stockton.
Stone, E. P.....Oakland.
Stout, A. B.....San Francisco.
Strong, A.....Woodland.
Sullavan, James F.....San Francisco.
Swan, Benj. R.....San Francisco.
†Thorndyke, A.....Stockton.
Thorne, W. S.....San Jose.

†Tilden, T. W.....Chico.
Titus, I. S.....San Francisco.
Todd, T. M.....Auburn.
Todd, F. W.....Stockton.
Toland, H. H.....San Francisco.
Tonner, J. A.....San Francisco.
Trembley, J. B.....Oakland.
Twitchell, W. L.....San Francisco.
Tyrrell, G. G.....Sacramento.
Van Vlack, G. J.....San Francisco.
†Van Wyck, John C.....Oakland.
Wagner, John.....San Francisco.
Walker, D.....Martinez.
Wanzer, L. M. F.....San Francisco.
Washington, W. A.....Merced.
†Wayman, W. G.....San Francisco.
Webster, L. R.....Grass Valley.
Wells, J. T.....Bakersfield.
Wells, W. H.....Dixon.
Wheeler, P.....Oakland.
White, G. A.....Sacramento.
Whittell, A. P.....Sacramento.
Wilder, A. M.....San Francisco.
Wilkins, E. T.....Napa.
Willey, John M.....San Francisco.
Williams, N.....Richland.
Woolsey, E. H.....Oakland.
Worthington, H.....Los Angeles.
Wythe, W. T.....San Francisco.
Younger, W. J.....San Francisco.

HONORARY MEMBERS.

Joseph Hyrtle.....Vienna, Austria.
Charles A. Cameron.....Dublin, Ireland.
†Professor Louis Agassiz.....Massachusetts.
S. W. Thayer.....Vermont.
J. H. Wythe.....Oakland, Cal.
John Le Conte.....Oakland, Cal.
Joseph Le Conte.....Oakland, Cal.
A. Ames.....Boston, Mass.
S. M. Tibbitts.....San Francisco.
P. Landsdale.....United States Navy.
David Kindleberger.....United States Navy.
W. E. Taylor.....United States Navy.
S. F. Shaw.....United States Navy.
W. M. Nickerson.....United States Navy.
G. Farwell.....United States Navy.
C. McCormick.....United States Army.
R. Murray.....United States Army.
C. C. Keeney.....United States Army.
E. Bently.....United States Army.
F. Tallon.....United States Army.

Wilder

610.5
M8
S68
C15

TRANSACTIONS

OF THE

MEDICAL SOCIETY

OF THE

STATE OF CALIFORNIA,

DURING THE YEARS 1879 AND 1880.

SACRAMENTO:
H. A. WEAVER, BOOK AND JOB PRINTER.
1880.

610.5
M

TRANSACTIONS

OF THE

MEDICAL SOCIETY

OF THE

STATE OF CALIFORNIA,

DURING THE YEARS 1879 AND 1880.

SACRAMENTO:
H. A. WEAVER, BOOK AND JOB PRINTER.
1880.

REPORT OF COMMITTEE ON PUBLICATION.

The Committee on Publication take pleasure in presenting to the members af the Medical Society of the State of California the Tenth Volume of its Proceedings, believing that the labors of both contributors and publishers have been conscientiously performed.

GERRARD G. TYRRELL, Chairman,
F. W. HATCH,
G. L. SIMMONS,
W. R. CLUNESS,
W. A. BRIGGS,
Members of Committee on Publication.

SACRAMENTO, July, 1880.

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THE TENTH ANNUAL MEETING

OF THE

MEDICAL SOCIETY

OF THE

STATE OF CALIFORNIA.

THE Tenth Annual Session of the Medical Society of the State of California convened at Covenant Hall, on Eddy Street, San Francisco, and was called to order at 11 A. M., April 21st, 1880, by the President, A. W. Saxe, M. D.

Dr. R. H. Plummer, Chairman of Committee on Arrangements, delivered the following address of welcome:

MR. PRESIDENT AND MEMBERS OF THE MEDICAL SOCIETY OF THE STATE OF CALIFORNIA: The tide of Time in its annual flood has rolled in upon us and brings to us, upon its crest of "sparkling foam," our tenth annual meeting. It is greatly to be regretted that our enthusiasm is somewhat dampened this morning by the unpropitious state of the weather, rendering our attendance smaller than it otherwise would be. But being *creatures* of circumstances, as well as *creators*, it becomes necessary that we accept it as we find it. And as *good* frequently comes from a *seeming* evil, so do we expect that our present disappointment and inconvenience will be lost in the anticipation of the brighter future that is to follow—in the increase of mineral and cereal products.

My confreres upon your Committee of Arrangements desire to extend to you, through their Chairman, the right hand of fellowship, and bid you welcome!

We welcome you again to this Hall, with its nicely carpeted floors, its easy chairs, its elevation above the noise and confusion of the street, and its elevator always at our command, and where, too, one year ago we held such a delightful meeting. We might have invited you to a larger and more fashionable hall in the business center of the city, with seats composed of long, hard benches sending forth their notes of discord and disapproval every time an occupant changes position; with bare floors better arranged for the pleasure of those who worship at the shrine of Terpsichore, sending forth the echoing footfalls of comers and goers, and where the acoustics, too, are quite as well adapted to such sounds and the rumbling of passing vehicles as to the voice of the reader or speaker! But the contrast is at once apparent without further delineation.

And then again the chord of memory draws us to this hall. It is a principle in the human heart to love to linger over the memory of happy moments, and to desire to live them over again. Here, to-day, old friendships are renewed and cemented, and new ones formed and cultivated. But in the hour of our gladness we remember also that we had sorrows.

Death, clad in the somber habiliments of woe, had then, as he has now, been stalking forth in our midst, and, with too unerring aim, had sent his shafts home, and we were left to mourn the vacant seats. And when the happy seance had ended, as all such events do, we were called upon to take the parting hand and to utter that word around which clusters so much sadness and sorrow, the word farewell! For, judging the future by the past, we well knew that for some it would be a long and a final farewell! But, as some one has said, "Hope springs eternal in the human breast," so we, ere the hand had scarce grown cold from the parting pressure, found ourselves forming schemes for this happy reunion.

And now, Mr. President and fellow members, we invite your attention to the labors we have laid out for you. There will be many valuable papers and subjects presented for your consideration. This is one of the most eventful periods for legitimate medicine that has ever occurred in the history of this State. Time-honored principles have been set aside for political clap-trap! The lights of art and science, that ages have been trimming to guide us and future generations in that search for the fount of eternal youth, have been disregarded, set aside—nay, placed under the bushel—and their places sought to be supplied by an eclectic light in a homeopathic dose.

(See State Board of Health.) It has been attempted, during the recent session of the Legislature, to compel us again to learn to write prescriptions.

I will here take occasion to call the attention of the Society to an animal which has reared itself in our midst—a hydra-headed monster! The honorable Court recently declared that one of its heads had imbibed its erudition from an unsanctified source (ask Bancroft), whereupon that head was severed from the trunk; but the traditional caustic not having been applied, another head made its appearance, and the animal still lives in our sister city across the bay. I allude to an institution chartered under the laws of this State as the California Eclectic Medical College; which, by the way, recently applied to the honorable Court for permission to *drop* the word *Eclectic*, thereby endeavoring to identify itself in the public mind with the regular profession—throwing open its portals to all the quacks in the country, inviting them to come forward and be elevated to the proud position of "peer to any man" in medicine here, as far as any *legal* enactment can do it, your Board of Examiners to the contrary notwithstanding.

But I wander from the well-beaten paths into the by-ways, and, craving your pardon, will return.

To those of you who have taken this occasion to absent yourselves from your homes, to sacrifice your time and your business, who have traveled over weary miles of land and water to meet and mingle with us, to add your labors to ours in building up the common interests of our chosen profession, by preserving, through the records of our Society, whatever of interest and utility has been discovered or observed during the past year, we bid you welcome! "welcome to our city, to our homes, and to our hearts!" And when the labors of this literary feast shall have been finished, the San Francisco County Medical Society, seconded by the Society of German Physicians, invite you to a banquet—prepared under the supervision of a committee whose well known ability in that direction needs no eulogy from me—at the San Francisco Verein, No. 219 Sutter Street, between Kearny and Dupont, where it is hoped that the waste of tissue consequent upon the labors of this session will be somewhat repaired.

On motion, the address was referred to the Committee on Publication.

The Committee of Arrangements then reported the following mem-

bers as present: A. W. Saxe, Santa Clara; R. H. Plummer, San Francisco; Lee O. Rodgers, San Francisco; A. G. Anthony, delegate from Alameda; T. B. DeWitt, South San Francisco; J. B. McMahan, Oakland; M. S. McMahan, delegate from Santa Clara Medical Society; Charles McQuesten, San Francisco; G. A. Shurtleff, Stockton; C. N. Ellinwood, San Francisco; G. G. Tyrrell, Sacramento; C. G. Kenyon, San Francisco; F. W. Todd, Stockton; C. P. Chesly, San Francisco; Washington Ayer, San Francisco; W. H. Mays, San Francisco; A. S. DuBois, San Leandro; George H. Jackson, Woodland; H. M. Fiske, San Francisco; L. M. F. Wanzer, San Francisco; F. H. Payne, delegate from Alameda Medical Society; M. K. Curran, San Francisco; H. S. Orme, Los Angeles; R. W. Murphy, San Francisco; W. H. A. Hodgden, San Francisco; R. K. Reid, Stockton; E. A. Stockton, Stockton; F. A. A. Belinge, San Francisco; H. St. George Hopkins, Oakland; Wm. M. Lawlor, delegate from Oakland; W. F. McNutt, San Francisco; J. E. Pelham, San Francisco; E. B. Robertson, San Francisco; G. J. Van Vlack, San Francisco; J. O. Hirschfelder, San Francisco; H. S. Baldwin, San Francisco; W. A. Grover, San Francisco; G. P. Reynolds, delegate from Alameda Medical Society; James F. Sullivan, San Francisco; B. D. Dean, San Francisco; W. L. Twichell, Alameda; G. J. Bucknall, San Francisco; L. H. Patty, delegate from Petaluma; L. Pawlicki, San Francisco; H. Gibbons, Sr., San Francisco; B. F. Hardy, San Francisco; C. E. Blake, San Francisco; C. M. Bates, San Francisco; M. C. O'Toole, San Francisco; M. M. Chipman, San Francisco; O. O. Burgess, San Francisco; G. M. Freeman, San Francisco; E. H. Woolsey, Oakland; James Murphy, San Francisco; Charlotte B. Brown, San Francisco; A. H. Agard, Oakland; S. W. Dennis, San Francisco; P. B. M. Miller, Oroville; J. L. Sargeant, Woodbridge; W. H. Bruner, San Francisco. Reported—J. H. Wythe, Oakland; R. Beverly Cole, San Francisco; M. A. Cachot, San Francisco; G. E. Reynolds, San Francisco; S. M. Tibbetts, San Francisco; A. Fine, San Francisco; W. A. Briggs, Sacramento; K. N. Post, San Francisco; W. M. Lawler, San Francisco; B. R. Swan, San Francisco; H. Gibbons, Jr., San Francisco; A. B. Stout, San Francisco; John Wagner, San Francisco; John Scott, San Francisco; L. L. Dorr, San Francisco; Theo. Green, San Francisco; Robert Caldwell, San Jose; C. A. Buckel, San Francisco; W. P. Gibbons, Alameda County; W. T. Wythe, Alameda County; Mrs. A. McG. Stuart, Santa Barbara;

F. W. Hatch, Sacramento; — Hertell, San Joaquin; G. W. Davis, Chico.

On motion of Dr. Orme, the calling of the roll was dispensed with.

The Board of Censors, Dr. Ellinwood Chairman, reported the names of the following gentlemen as eligible to election to membership:

NAME.	SCHOOL.	DATE.
Wallace A. Briggs, Sacramento	University of Michigan	1871
Wm. M. Brown	University of Louisiana	1872
Wm. M. Lawlor, Oakland	Albany Medical College	1867
L. W. Patty, Petaluma	St. Louis Medical College	1877
Jacob L. Sargent, Woodbridge	Vermont Medical College	1846

On motion, the report was received and the gentlemen duly elected.

The following visitors being present were invited to seats on the floor: Wm. E. Briggs, Sacramento; Albert L. Adler, San Francisco; E. A. Clark, San Francisco; A. B. Stuart, Santa Barbara.

Dr. Saxe, President of the Society, then delivered the annual address, which was referred to the Committee on Publication.

The Board of Censors presented the case of Augustus Hirtel, who presented his certificate from the State Board of Examiners, testifying to his qualifications, but who had not his diploma with him.

Dr. Todd stated that Dr. Hirtel was a member of San Joaquin County Medical Society, and had, at the time of his admission, presented his diploma, and moved that he be elected to membership in the Society.

After some discussion as to the requirements of the Constitution upon the subject, which were adverse to his claim, Dr. Gibbons, Sr., stated that the evidences of Dr. Hirtel's graduation were so irrefragable that he hoped he would be unanimously elected.

The vote of the Society was thereupon taken, and he was so elected.

Secretary Tyrrell read the following communication from the Secretary of the Oregon State Homeopathic Society:

PORTLAND, Oregon, November 4th, 1879.

DR. G. G. TYRRELL—DEAR SIR: At the last session of the State Medical Society of California, a resolution was passed, giving its members "the fullest latitude to use any remedy or any means whereby the welfare of the sick may be promoted," etc.

At the July session of the Oregon State Homeopathic Medical Society the Secretary was instructed to ascertain the precise construction intended to be placed upon the above words, in the matter of the

attitude of the "regular" school towards the homeopaths. It has been generally understood that the regular physicians were not allowed to consult with homeopaths, or to give remedies on the homeopathic principle. The above words seem to indicate that in California this restriction has been removed. If so, we shall be glad to recognize the change. Will you, therefore, please inform me, at your convenience, what reply to give our Society. Respectfully,

O. B. BIRD, M. D.,
Secretary Oregon Homeopathic State Medical Society.

Which, on motion of Dr. Shurtleff, was laid on the table.

Dr. James Murphy, Chairman of Committee on Surgery, read his report, which, on motion, was referred to Committee on Publication.

The Board of Censors reported the name of Kate N. Post, San Francisco, (Medical College of Pacific, 1879,) as eligible to membership. She was duly elected.

On motion, the meeting adjourned.

AFTERNOON SESSION, APRIL 21ST, 1880.

The Society was called to order by the President at 2 P. M.

Dr. Gibbons, of Alameda, moved that the case of Dr. Boushey, laid over from last year, be referred to the Board of Censors. Carried.

Dr. Gibbons, of Alameda, moved that the paper which he would present upon Indigenous Botany be made the special order for tomorrow morning, which was carried.

Dr. Tyrrell moved that Dr. Kenyon, of San Francisco, and Dr. Briggs, of Sacramento, be appointed as Assistant Secretaries *pro tem.*, in absence of the regular Assistant Secretaries.

Dr. Oatman presented his report as Treasurer, and Dr. Ayer, Treasurer of the State Board of Examiners, presented his report, which, on motion, were referred to an Auditing Committee, consisting of Drs. Gibbons, Sr., H. S. Orme, and F. W. Todd.

Dr. Plummer, Secretary of the State Board of Examiners, presented his report, which, on motion, was referred to the Committee on Publication.

Dr. Tyrrell, in the absence of Dr. Oatman, Chairman, presented the report of the Committee on Medical Legislation. Referred to Committee on Publication.

Dr. Oatman presented the following amendment to the Constitution:

The President shall annually appoint a Committee on Medical Legislation, whose duty it shall be, by all lawful and honorable means, to promote the passage of Acts of legislation approved and recommended by this Society, with discretionary powers in emergencies.

Laid over under the rules.

Dr. Oatman proposed the following resolution: That the President appoint for the ensuing year a Special Committee on Medical Legislation, with instructions and powers contemplated in the proposed by-law on that subject. Carried.

The President appointed the following committee: I. E. Oatman, F. W. Todd, A. H. Agard.

M. M. Chipman, as Chairman, read his report on Public Hygiene and State Medicine, which was referred to the Committee on Publication.

President Saxe explained a misunderstanding which had arisen about the Chairmanship of the Committee on Mental Diseases.

On motion, Dr. Shurtleff was requested to make out such report and send it to the Committee on Publication.

An invitation was received from Mrs. A. L. Stone, President of the Women's and Children's Dispensary Hospital, San Francisco, to visit said Hospital. Received and accepted with thanks.

The Committee on Publication presented their report, which was received and accepted.

Vice-President F. W. Todd being called to the chair, President Saxe read the following short address upon the duties of members to the Society regarding their dues:

TO THE MEMBERS OF THE CALIFORNIA STATE MEDICAL SOCIETY—GENTLEMEN: The obvious objects of your organization are the furnishing greater facilities for communicating professional observations, interchange of sentiment upon medical and surgical topics, mutual acquaintance and protection, as well as sustaining the dignity and importance of the profession throughout the State. Your organization is admirably adapted to the development of facts relating to medicine and hygiene, in which every member of our population is interested, and by which they are constantly being educated.

In order to the proper working of this most excellent and indispensable organization a trifling sacrifice—a little self-denial—is necessary.

Among the least of these requirements is the annual payment of *five dollars*. This trifling annual payment is regarded as necessary to the existence of the organization, and no member has thus far objected to the propriety or necessity of the demand. And yet many of our most worthy and excellent members so far forget their obligations as to neglect this prime factor in the existence of the organization.

The results of this neglect are, first, a serious hindrance to the free and best conditioned operation of the Society; second, great perplexity and annoyance in making appointments in filling the various standing committees; and, third, the appearance of partiality, and neglect of some of the most valuable and competent members of the Society.

This apparent neglect is, however, unavoidable, as those who fail to meet their societary obligations render themselves ineligible to official position. This condition of things is lamentable. The obligations and benefits are mutual, and the wider and more complete its scope the greater the influence of your Society. Every regular member of the profession in the State should be enrolled as a member of your Society, and every member should pay his dues. Then only can the most remote and obscure member claim the honor and protection of our most noble fraternity in California.

Dr. Gibbons, Sr., heartily indorsed the sentiments of the paper, urging in earnest terms the necessity of members fulfilling their obligations to the Society.

Dr. L. R. Webster, through the Secretary, presented his resignation as a member, owing to his inability to attend the meetings. Accepted.

Dr. Gibbons, Sr., moved that the amount offered for a prize essay be increased from fifty dollars to one hundred dollars. Carried.

Dr. Plummer moved the following resolutions:

Resolved, That it is desirable that there shall be a uniform system of examination for the degree of Doctor of Medicine apart from the institutions of teaching, so that the diploma shall be awarded to all competent candidates, and that the profession and society at large shall be secured against the possibility of the degree of Doctor of Medicine being conferred upon unworthy or incompetent individuals.

Resolved, That a committee of three be appointed by the President to prepare and present, before the close of this session, some plan by which said object can be accomplished.

The resolutions were adopted, and the following committee appointed: Drs. Mays, Gibbons, Sr., and A. H. Agard.

Dr. E. B. Robertson exhibited a newly invented truss-pad with remarks, which, together with some reported cases of surgery, were referred to the Committee on Publication.

The Board of Censors reported William Lewitt, of San Francisco, (Jefferson Medical College, 1855,) as eligible to membership, and he was duly elected.

The minutes of the morning and afternoon sessions having been read and approved, the Society adjourned until 7:30 P. M.

EVENING SESSION, APRIL 21ST, 1880.

President Saxe in the chair.

Dr. Simpson read his report on Practical Medicine; also, supplementary reports by L. R. Webster, of Grass Valley, and E. B. Robertson, of San Francisco, which were referred to the Committee on Publication.

Dr. Thorne, Chairman, presented his report on Histology and Microscopy, with a supplementary report of Dr. J. H. Wythe, which were referred to the Committee on Publication.

Dr. W. H. Mays presented a paper on Gynecology.

Dr. John Scott, in some interesting remarks, criticised the paper, especially in reference to cervical laceration, and also in regard to Dr. Mays' deprecation of the use of pessaries.

On motion, the paper was referred to the Committee on Publication.

Dr. Tyrrell, Permanent Secretary, presented his resignation in the following terms:

MR. PRESIDENT, LADIES AND GENTLEMEN: Before the Nominating Committee to select officers for the ensuing year is appointed, I desire to place before this Society my resignation as its Permanent Secretary. Increasing duties and professional cares render this step absolutely necessary, not only for my own relief, but for the welfare of the Society.

It is now seven years since I was appointed to the responsible and honorable office of Permanent Secretary of this Society, and during that period I have endeavored to perform the duties assigned me with credit to myself, and for the highest interest and welfare of the Society. In doing this I have necessarily offended some, incurred the

dislike of others, and have experienced the personal enmity of a few. This is the natural result common to all officials who are faithful to their trust. On the other hand, I am happy in the belief that the friends who appreciate the honest performance of a duty far outnumber my reputed enemies. In resigning this office now, I leave it when the spirit of peace, tranquillity, and brotherly love broods over the Society; when all its members, as far as known, are regular graduates in medicine; when the Society is out of debt; when its relations are established with every kindred Society in the United States, and when our transactions can be found in most of the regular medical societies in Europe. As long as there was a battle to be fought in behalf of legitimate medicine as against illegality and quackery of every sort, I remained your Secretary, to give assistance in conquering the common enemy. Now that the victory is won, and our Society has established itself as in every way legitimate and one worthy of our State, I beg most respectfully to tender my resignation and ask your acceptance of it in favor of a "younger if not a better soldier" than myself. Yours, respectfully,

GERRARD G. TYRRELL.

Dr. H. S. Orme, in moving the acceptance of Dr. Tyrrell's resignation, wished to express his high appreciation of Dr. Tyrrell's services, and hoped the Society would express, in a resolution, its sense of their value.

President Saxe also said that few are aware of the immense amount of work performed by the Permanent Secretary, and how well that work had been performed.

A vote being taken, Dr. Tyrrell's resignation was accepted.

Dr. Gibbons, Sr., offered the following resolution:

That the sincere thanks of this Society be returned to Dr. Tyrrell on the occasion of his resignation, for the faithful and efficient performance of his duties as Secretary of the Society from the date of its reorganization to the present time.

Carried unanimously.

Dr. O. O. Burgess presented his report on the Diseases of Women and Children, which, on motion, was referred to the Committee on Publication.

Dr. H. M. Fiske presented a paper upon the Efflorescences in Medicine. Referred to the Committee on Publication.

Dr. Gibbons, Sr., offered the following resolution, which, on motion, was adopted:

Resolved, That the exemption of our State from epidemic small pox for a number of years renders it probable that a visitation of that pestilence is not far distant in the future; and, for this reason, and because also that the absence of small pox has led to the neglect of vaccination and the existence of a vast amount of material for the disease to feed on, this Society, therefore, urges the members of the profession throughout the State to press upon the people the necessity of enforcing vaccination as the only means of protection. Especially should all unprotected children, and other persons who have never been vaccinated, be speedily and carefully subjected to that process.

Dr. James Simpson, in rising to second the motion, would call the attention of the Society to the fact that, though the people depend upon the quarantine and health officers, they deny these departments the means of protection. The Legislature should make an appropriation for a quarantine ground. Dr. Simpson hopes the country physicians will impress upon their representatives the importance of measures to this end.

The minutes of the session having been read and adopted, the Society adjourned.

MORNING SESSION, APRIL 22D, 1880.

The Society convened at 10 minutes of 11 A. M., Dr. Saxe presiding.

The Committee on Nominations not being ready to report, and there being nothing before the house, Dr. R. W. Murphy called upon President Saxe to give some information in regard to the leprosy of the Hawaiian Islands.

Dr. Saxe stated there are 700 cases of leprosy on the island set apart for that purpose. Out of that number 400 die annually. The arrivals keep up the number. The people hide away victims of the disease from officers of the Government. The disease is non-infectious, but is inoculable in every way by which a disease can be inoculated. The disease develops first in the dermoid tissue; second, by proliferation in the sub-dermoid tissue. Many people escape from the island to this country and to Europe. Dr. Saxe believes there are numbers of cases of leprosy in San Francisco.

Dr. Gibbons, Sr., asked the Doctor how many cases he had seen California among white people.

Dr. Saxe said one.

The Nominating Committee presented the following report:

The Nominating Committee who were appointed to nominate officers for the ensuing year, beg leave to report the following names:

For President—F. W. Todd, of Stockton.

Vice Presidents—First, G. G. Tyrrell, of Sacramento; second, W. Davis, of Chico; third, A. H. Agard, of Oakland; fourth, [illegible] Kirkpatrick, of San Mateo.

Permanent Secretary—Wallace A. Briggs, of Sacramento.

Assistant Secretaries—Thomas Ross, of Woodland; [illegible] of San Francisco.

Treasurer—Ira E. Oatman, of Sacramento.

Board of Censors—O. O. Burgess, of San Francisco; [illegible] of San Francisco; M. S. McMahan, of San Jose; [illegible] of Oakland; J. O. Hirschfelder, of San Francisco.

State Board of Examiners—C. M. Bates, of San Francisco; [illegible] Gibbons, Jr., of San Francisco; C. Cushing, of San Francisco; [illegible] H. Plummer, of San Francisco; James Simpson, of San Francisco; [illegible] W. Ayer, of San Francisco; A. H. Agard, of Oakland.

Censors—G. A. Shurtleff, of Stockton; H. K. [illegible] Thomas Kelly, of San Jose.

Next place of meeting, San Francisco.

[illegible] That it is the sense of this committee that we [illegible] San Francisco County Medical Society to forego the [illegible] banquet; or, in case the banquet is decided upon, that [illegible] profession partaking thereof contribute thereto.

[illegible] unanimously adopted.

G. G. TYRRELL, Secretary.

[illegible] read reports of the Special Committee on State Institutions [illegible] Referred to the Committee on Publication.

[illegible] moved that Article III, Section [illegible] of the [illegible] By-laws, be so changed as to read: "[illegible] Secretary shall authenticate the proceedings [illegible] shall reside in Sacramento.") Laid over under [illegible]

[illegible] read a paper upon the use of salicylic acid [illegible] in fever.

Dr. Plummer rose to a question of privilege, calling attention to a circular letter sent out by a member of this Society—Dr. A. S. Hudson, of Stockton. After reading the letter he claimed that no greater insult could be offered to this Society than this letter. He then moved that the name of Dr. A. S. Hudson be stricken from the roll of the Society. Carried.

Dr. C. A. Buckel, of Oakland, presented a fragment of a calculus removed by her, and read notes of the case as follows: The calculus of which this is a fragment was imbedded in the posterior wall of the bladder, just behind the neck, and measured about two inches in length and about one and one eighth inches in diameter, it being cylindrical in form. It was broken by Chassiere's lithotrite into three large pieces, which were of about the same diameter but of different lengths. The piece here exhibited is the one of medium size. It measures one and one eighth inches in its longest diameter and about five eighths of an inch in its shortest diameter, and was removed through the urethra, as was also the still larger fragment, without causing any abrasions or ulcerations even. The incontinence of urine, which had been distressing, was relieved the second day after its removal. Its chief interest, in the absence of the history of the case, is in the proof it gives of the dilatability of the female urethra.

The following gentlemen were named as delegates to the American Medical Association: F. W. Hatch, R. Beverly Cole, G. A. Shurtleff, G. G. Tyrrell, and H. S. Orme.

The Secretary was also authorized to issue credentials to any other member of the Society who might notify him of his intention of attending the Association.

Meeting then adjourned until 2 P. M.

AFTERNOON SESSION, APRIL 22D, 1880.

The Society was called to order by the President at 2 P. M.

Dr. Stout, Chairman of Committee on Necrology, read his report, which was referred to the Committee on Publication.

Dr. Clinton Cushing read a paper on "Laceration of the cervix uteri." Referred to Committee on Publication.

Dr. Simpson moved that this Society direct Dr. R. Beverly Cole to invite the American Medical Association to hold its next annual meeting on this coast. Carried.

Dr. Tyrrell offered the following amendment to the Constitution:

Article V, Section 1 (on Standing Committees)—After that on Mental Diseases be added: On Gynæcology; on Diseases of Women and Children; on Opthalmology; on Necrology. And after Section 9 of same article, "that the duties of these committees be defined by a committee of three, appointed by the President for that purpose."

Laid over under the rules.

Dr. Thorne offered the following:

In view of promoting the largest attendance possible at the annual meetings of the California State Medical Society, and in view of the present inclemency of the weather in this month, and its probable recurrence at like periods in the future, thereby rendering attendance by country members difficult, if not impossible; be it

Resolved, Therefore, that the annual meetings of this Society shall hereafter be held on the second Tuesday of May, instead of April.

Laid over under the rules.

It was resolved that the Secretary be instructed to forward at once to the American Medical Association the resolution offered by Dr. Oatman, last year.

Dr. W. P. Gibbons read his report upon Indigenous Botany, which was referred to the Committee on Publication, and five hundred copies ordered printed in pamphlet form.

Dr. A. W. Saxe being compelled to go home, Dr. F. Walton Todd, of Stockton, who was our first Vice President, and President elect, was then conducted to the chair by Drs. W. Ayer and H. S. Orme—Dr. Ayer making a few appropriate remarks. After which Dr. Todd responded with the following:

I rise to express my thanks to yourselves, as well as to your Nominating Committee, for the compliment you have paid me in selecting me as your presiding officer for the ensuing year. It is a compliment of which any gentleman may be proud, and justly proud, to be chosen from so intelligent and respectable a body as its standard bearer; and my knowledge, by long association, of the respectable position you occupy, individually and collectively, makes me diffident in accepting the high office to which your partiality has called me, which my predecessors have filled with such distinguished ability.

But we have, as individuals and as a Society, duties to perform of a very responsible nature, for upon the graduates of regular medicine devolves the trust of confiding to fit successors the sacred repository of the wealth of learning of our noble profession. We have something more than honors to receive, we have work to do, for the science of

medicine has become too broad to attain respectability in it without earnest, laborious effort; and we have but laid the foundation in this State, if, indeed, we have done so much, for the noble structure that must command the respect of the public. We must therefore see to it that those who take our places hold them by a higher tenure than mere successful charlatanry.

Not only this. The public must be educated; and who is there to teach it, if we do not, that the disciples of legitimate medicine alone are the repositories, the worthy repositories, of the knowledge of nearly three thousand years of devoted study, by some of the best minds, of the human system, in health and in disease?

It is with the hope that I shall be able to further these laudable objects that I accept this responsible trust, and I should be unwilling to assume it if I did not feel assured of your hearty co-operation.

With the pledge of untiring zeal and impartiality, and craving your indulgence for my shortcomings, I again thank you for the very high honor you have conferred upon me.

The Board of Censors reported the following applicants as eligible to membership:

NAME.	SCHOOL.	DATE.
James R. Laine, Sacramento	University of Buffalo	1876
Gerald J. Fitzgibbon, San Francisco	Medical College Pacific	1877
William E. Briggs, Sacramento	Wooster University, Ohio	1877
Alice Higgins, Anaheim	Medical College Pacific	1877
Anabel McG. Stuart, Santa Barbara	Medical College Pacific	1878
Chas. H. Steele, 2230 Mission St., S. F.	University City New York	1874
T. J. Le Tourneux, San Francisco	Medical College Pacific	1879

Report read and adopted.

On the application of Dr. Boushey, the Board reported as follows:

In the case of Dr. Julius Boushey, the Board of Censors, finding that he has been refused membership in the Alameda County Medical Association, respectfully report adversely to his admission in this Society.

San Francisco, April 22d, 1880.

C. N. ELLINWOOD,
C. A. KIRKPATRICK,
P. WHEELER,
CHAS. E. BLAKE,
Board of Censors.

On motion, the report was received.

Dr. Woolsey spoke against the report. He desired that the application of Dr. Boushey be investigated, and he called upon Dr. W. P. Gibbons to explain the matter.

Dr. Cole spoke, sustaining the Board of Censors.

Dr. Ellinwood spoke of the case, explaining the rejection.

Dr. Simpson asked if the Constitution did not debar him.

Dr. Woolsey read from the Constitution, and made quite a lengthy speech, claiming that Dr. Boushey was wronged, and therefore he appeared in his defense.

Drs. Wm. Brown and Farley also spoke on the question.

A ballot having been taken, the report of the committee referring to Dr. Boushey was not accepted.

On motion of Dr. Cole, the case was referred to the Board of Censors, to report in one hour—upon the qualifications of Dr. Boushey.

Dr. W. H. Mays, Chairman of the Special Committee on State Board of Medical Examiners to grant the degree of Doctor of Medicine, offered his report.

Objection being made to the reading of the report, Dr. Plummer moved that the report be read.

Dr. Cole moved, as the report is irregular, that it be not heard.

Dr. Gibbons moved, as an amendment, that the report be deferred to next meeting. Carried.

Dr. Simpson moved a reconsideration.

The Chair decided the motion out of order.

Dr. O'Toole presented a pathological specimen of calcareous degeneration of the structure of the heart. Referred to the Publication Committee.

Also, exhibited a specimen of the heart of Dr. Tucker, deceased, who requested his heart to be exhibited.

Dr. J. H. Wythe exhibited a binocular microscope—"Zentmeyer's Grand Centennial Binocular"—and exhibited some specimens.

Dr. Hirschfelder read a paper upon localization of disease upon the cerebral surface, and gave some interesting experiments demonstrating this fact upon the living dog.

Dr. Wythe made some remarks upon the frequency of disease of the brain in California, and advocated the establishment of experts on pathology in insane asylums, to examine and photograph the brains of those dying of cerebral disease.

It was moved that a vote of thanks be tendered Dr. Hirschfelder for his experiments, and that his paper be referred to the Committee on Publication. Carried.

On motion of Dr. Farley in relation to the matter of Dr. Boushey, it was resolved that the Society become a Committee of the Whole to

examine credentials and report; which, having been done, on motion, the committee rose and reported that Dr. Boushey's credentials were correct.

On motion, Dr. Boushey was elected a member of the Society.

The minutes being read and approved, the Society adjourned.

EVENING SESSION, APRIL 22D, 1880.

The Society convened at 7:30, President Todd in the chair.

A case of double congenital cortical cataract in a lady aged twenty years, right eye containing calcareous nucleus, was reported by Dr. M. C. O'Toole.

Dr. Dean, Chairman of the Committee on Obstetrics, not being present, Dr. Plummer moved that the Doctor be instructed to forward his report to the Publication Committee.

Dr. M. M. Chipman moved that Dr. J. F. Montgomery's paper on Water Supply and Sewerage be referred to the Committee on Publication. Carried.

Dr. A. Martinache, Chairman of the Committee on Opthalmology, presented and read a paper on this subject. Referred to the Publication Committee.

Dr. W. E. Briggs presented a paper entitled, "A Case of Retinal Hemorrhage from Intermittent Fever." Referred to Committee on Publication.

Dr. Ellinwood moved that a committee of three be appointed, to report to this Society at its next meeting, on the character, objects, and utility of the United States Marine Hospital service, including its relations to commerce, to the medical profession, and to the public. Carried, and the following committee appointed: C. N. Ellinwood, L. C. Lane, M. M. Chipman.

The Board of Censors reported Dr. Fifield, of Madison, Yolo County, (Medical College of Pacific, 1876,) as eligible to membership, and he was thereupon elected.

Dr. R. W. Murphy's paper on The Use of Chloral Hydrate, and Dr. Joseph F. Sullivan's paper on a New Pocket Forceps, were referred to the Committee on Publication.

On motion, the dues of the Secretary and Assistant Secretaries were remitted.

On motion, a vote of thanks was tendered the retiring officers.

Dr. Gibbons, Sr., Chairman of the Auditing Committee, reported that the Treasurer's report and the report of the Secretary of the State Board of Examiners were correct. Report received and ordered on file.

President Todd stated that he had been authorized by a member of the Society to offer fifty dollars, in addition to the one hundred already voted by the Society, for a prize essay.

Dr. Cole said that the name of the member was not unknown to him, but the President was too modest to mention it. He therefore took pleasure in informing the Society that this member was Dr. Todd himself.

Dr. Gibbons, Sr., offered the following resolution, which was adopted, and the Secretary was instructed to send a copy of the same to O. B. Bird, Secretary of the Homeopathic Society of Oregon, in answer to his letter to this Society:

Resolved, That in the resolution adopted last year by this Society, recognizing the right of its members to "use any remedy or any means whereby the welfare of the sick may be promoted," no new doctrine or principle of action was enunciated; that regular medicine prohibits no remedy or rational method of treatment; that it regards as irregular those practitioners and sects which act on some exclusive dogma, or employ certain remedies or methods to the exclusion of other means; that our refusal to consult with irregular practitioners is not founded on jealousy or personal motives, but we refuse because such consultations would not only be devoid of benefit to the patient, but would be an indorsement and a sanction of what we regard as delusive and dangerous error in doctrine and practice.

Dr. J. W. Blake presented a specimen of hypertrophy of the prostate, producing occlusion of the urethra, which required aspiration for relief of the bladder.

Dr. Gibbons, Sr., presented a paper on the danger from small pox and leprosy in California. Referred to the Committee on Publication.

The minutes were adopted, and, on motion, the Society adjourned.

GERRARD G. TYRRELL,

Permanent Secretary.

ANNUAL ADDRESS

DELIVERED BEFORE THE

CALIFORNIA STATE MEDICAL SOCIETY,

AT SAN FRANCISCO, APRIL 21ST, 1880.

BY A. M. SAXE, M. D.

LADIES AND GENTLEMEN OF THE CALIFORNIA STATE MEDICAL SOCIETY: In conformity to the requirements of the Constitution and By-laws of your organization, I have the honor of appearing before you, as Chairman of your Association, to offer you the customary Annual Address, with such suggestions and recommendations as may appear of sufficient importance to claim your attention.

As a Society, you are to be congratulated upon the harmony which has prevailed in your councils. Your efforts at elevating the standing of our profession on the Pacific Coast have not only been laudable, but to an encouraging degree successful; and your efforts in obtaining from the State Legislature an acknowledgment of your thorough respectability and public necessity, are referred to by kindred associations throughout our nation with approbation.

There is much yet to be accomplished before the conscientious practitioner of rational medicine can receive the full measure of respect to which he feels himself justly entitled, and from past experience we must infer that our only safety is in a constant assertion of our rights, and an unrelenting warfare upon all opposing influences. Our relations to the entire universe are such as to compel sentiments of humility and self-abnegation. Year after year we are hurled through space; traversing the circuit of the earth's orbit, days and seasons have come and gone; we have been the sport of ever-varying natural phenomena, and by the operation of the mysterious law of

gravity have returned to nearly the same regions of space we occupied one year ago. Who of us has been consulted as to the operation of any one of the laws of the universe? Verily, we are as motes in the mind of the Great Architect. Yet, in our relations to the little planet we occupy, and the human beings who people it, we are of the utmost importance, and human wisdom is constantly in requisition for the purpose of averting national and individual human suffering. Natural laws, however beneficent, are remorseless in their operation; and the mysterious principle called life is beset with antagonisms, from its dawn to its extinction.

Bichat defined life as "the totality of those functions by which death is resisted." The mind is more forcibly impressed with the truth of the statement than its completeness as a definition. However, it affords one of those convenient axiomatic statements from which we may draw many of our most valuable philosophical inductions.

The physician is not a creator, but a conservator; and he only is worthy of the name who, by the greatest wisdom and skill, endeavors to protect and sustain the modicum of vitality, general and local, which, as a congenital endowment, his patient may possess. To this end, medical science has achieved the most wonderful results. The bare mention of surgical anæsthesia, hypodermic use of remedies, disinfectant treatment of surgical disease, the accumulated knowledge of the natural history of disease, and the inestimable value of therapeutic observation during the last fifty years, together with the rapid strides now being made in all departments of medical scientific observation, should give us all a glow of honest pride in being members of such a profession.

The vital forces may be considered a unit—a pre-natal endowment which resists death for a greater or less space of time. The function of the physician and surgeon is that of taking cognizance of any aberration in these forces, local or general, and removing impediments to their free and best conditioned operation.

For many centuries the history of medicine was made up of detached items of human experience, and not until the last century have the natural sciences been availed of to any important extent. The accumulated knowledge of the past centuries, added to the overwhelming blaze of scientific discovery during the last fifty years, has placed rational medicine in the front rank of modern sciences. The practice of medicine is an art; but it is inseparable from an intimate

knowledge of medical science, and we pay little heed to the most brilliant natural endowments in the practice of medicine and surgery if unaccompanied with thorough scientific training. To this end, medical education has become almost unlimited in its scope, and so exacting are the requirements of modern civilization that the tendency is toward specialties and departments of the great body of medical science. The medical student of to-day is confronted with a mass of erudition and skillful manipulation, necessary to the successful practice of medicine and surgery, which might well appal the stoutest heart.* And the medical world is submitting as gracefully as possible (but not without many misgivings) to this subdivision and separation of its functions. The various departments of human knowledge are extending and widening so rapidly, from day to day, that the question of time and mental possibilities must enter largely into our estimates in organizing the curriculums of our medical colleges.

The propriety of insisting upon a knowledge of the classics is doubted by many, who consider the time necessary for its acquisition too great for the advantages it affords. There is, however, a very important view of the matter, to which we may do well to give heed. The nomenclature of science is mostly descriptive, and is intended to convey definite ideas. To one unacquainted with the language, the name or term conveys nothing but an abstract sound, and ideas are acquired only by association while taxing the memory with them; while to one having a knowledge of the languages these words and terms are full of significance, and do not burden the memory perceptibly, so that in the pursuit of knowledge the labor is infinitely lightened by this preliminary classical training. It is also a matter of common observation that our only excellent writers and speakers of the language of science are those who, early in life, acquired a knowledge of the classics. Who has not witnessed the pitiable efforts of even good minds to express themselves in respectable scientific language? And we must infer that a self-consciousness of this inability is one of the chief reasons for the reluctance of respectable and competent medical men to make reports of most interesting phenomena observed by them. Having once felt the merciless thrusts of literary and scientific criticism, the observer is content with making stray notes, and abandons the field to perhaps less philosophical, but better educated, minds.

*NOTE.—"Intemperance in Study," by D. Huck Tuke, read at the annual meeting of the British Medical Association. Reprinted in *Popular Science Monthly*, March, 1880.

The confidence and courage secured by a knowledge of the Latin and Greek—the languages of scientific nomenclature—are of incalculable value. And it may be said that few men, however brilliant their endowments or great their acquirements, attain the eminence due them without a preliminary classical training. The habit of careful observation and methodical record of phenomena in medical and surgical practice cannot be too highly commended nor too assiduously cultivated. The rational inductions of medical science, those upon which the practice of medicine and surgery are based, have been derived from the written experiences and observations of medical men from the remote past to the present. And opportunities for observations, new and invaluable, are as plenty now as heretofore, and even more abundant.

The annual aggregate of medical graduates in the United States is said to be greatly in excess of the needs of our population. It may be doubted if this is true. We are familiar with the doctrine of "the survival of the fittest" as a factor in the production and modification of species, and general adaptation of animal and vegetable life to its environment. Our medical teachers, however great their knowledge and ability to instruct, cannot make physicians and surgeons. They can only educate such candidates as present themselves. And as human mental capacity and skill are limited and unequally distributed, so we cannot know in advance which shall prosper, this or that. And the result is reached by the candidates themselves in a few years more justly and certainly than by any preconcerted selection and rejection of candidates by medical colleges. Ample and equal privileges to all is the only course to be pursued. There is, however, a growing conviction among thoughtful medical minds that no medical college, school, or university should be allowed the power to grant diplomas or universal charters for the practice of medicine. That this power should exist only in National Boards of Examiners having stated periods of session at the commercial centers of such States as have medical colleges, and at such times as to accommodate classes of candidates without too great inconvenience of travel and expense. And that such examinations should be as thorough and faithful as those of examining boards of the army and navy. The advantages claimed for the above plan are that, whatever theory of medical practice may be adopted, the patient and the community at large may be assured that human life and health are not to be the sport of ignorance, stupidity, and cupidity.

The early conditions of pioneer frontier life, with scarcity of medical ability and skill, can no longer be made an excuse for medical and surgical incompetence.

The subject of medical expert testimony, and its just remuneration before our Courts of justice, is engaging the attention of the profession throughout the nation. There can be no question as to the duty of all citizens to respond to summons of Courts, and testify as to matters of fact within their knowledge. It is the common duty of citizenship. Thus far there can be no diversity of sentiment. But the question is, whether a physician may be compelled to give a professional opinion, the value of which depends upon his fund of acquired scientific knowledge, the result of years of constant mental application and the expenditure of thousands of dollars, for the mileage and per diem allowed by our codes for witnesses in simple commercial and social matters of fact.

The members of the legal profession are careful to have their fees secured to them in advance of the rendering of their opinions, and the demand is proportionate to the magnitude or cash value of the interests involved. Neither the legal profession nor its clientage object to the justice or propriety of this custom. And there can be no reason, in the nature of things, why the learned physician and surgeon should not be paid in proportion to the value of his services in legal contests.

During a recent visit to the Hawaiian Islands I ascertained the following facts in regard to the local management of leprosy *(Elephantiasis Græcorum)*, a disease which threatens to destroy the entire Hawaiian race. The Government has undertaken—with commendable zeal, and at enormous expense—by isolation of all discoverable cases to stamp out the disease. This effort was inaugurated in 1864. Its annual cost has been fifty thousand dollars, or nearly one twelfth of the entire revenues of the kingdom. It is one of those heroic efforts which should enlist the sympathies and excite the admiration of all civilized nations.

It is not my purpose to enter into statistical details of the disease in that interesting group of islands—however valuable these might be for your future consideration—but to call your attention to some incidental facts which are of vital importance to the welfare of our State.

The very salutary laws enacted by the Hawaiian Legislature have been very faithfully executed, so far as the native population is con-

cerned, but, unfortunately, the disease often attacks white residents. These white lepers are allowed to emigrate to any part of the civilized world they may select. The result is that many have gone to Oregon, California, the Eastern States, and Europe; some for special treatment, but mostly to escape recognition of the disease.

It is not necessary to state to the well informed physician that the disease is not infectious, nor is it contagious by most of the modes, nor to the same degree, as variola, or other exanthematous diseases. But there is no doubt as to its inoculability and hereditary transmission through either parent, and there is a prevalent opinion among the best informed physicians who are familiar with the disease, that it may be communicated by contact with clothing, or apartments occupied by lepers. Also, that it is incurable; that the period of incubation and development may occupy many years, during which period only an expert can detect its presence; and that it is at all times communicable by the above methods. The above facts, pertaining to State and National hygiene, are thought to be sufficiently important to deserve your careful consideration.

With one exception there is little diversity in the public estimate of the value and necessity of our public and private charities. To this exception—foundling and lying-in hospitals—your attention is respectfully invited. Many estimable people regard these institutions as affording special facilities for the concealment of societary misdemeanors and mitigation of their punishment; that they undermine chastity and cheapen female virtue; holding that these delinquents should suffer all the privations and indignities their virtuous neighbors may see fit to heap upon them; and that the unfortunate offspring of these societary infractions should suffer social ostracism, and be branded with the mark of Cain. It is unnecessary to inquire who and what dishonors the unfortunate mother and what agency the child has in its summary expulsion from the social Eden enjoyed by virtuous people. These social irregularities occupy a debatable relation to abstract morals, and may be classed as infractions of social order by natural law, and the fact of their universal possibility should soften and minify the verdict of a Christian people. It may be confidently asserted that these charitable institutions have no agency in producing beneficiaries. The percentage of these society irregularities is a very constant quantity in all communities, whether savage or civilized; and the number in any decade, in any nation, may be predicted with all the precision of the advent of a solar eclipse; the only

question being, Shall the suffering consequent upon these inevitable human errors be mitigated, and human life protected? The immaculate societary Pharisee is respectfully invited to "cast the first stone" at these unfortunates and their charitable friends. But there is no uncertain sound in the injunctions to feed the hungry, clothe the naked, heal the sick, soothe the sorrowing, and cast over human frailty the broad mantle of charity, having the Divine assurance that "inasmuch as it is done unto one of these little ones" it is done unto the great human exemplar and Father of us all.

A matter pertaining to medical ethics has been brought conspicuously before the professional world, in the fact that a popular Scottish journal lately published a highly commendatory sketch of one of the most eminent Scotch surgeons. The medical journals of Britain and America have taken issue upon the propriety of such journalistic encomiums. There is no doubt of the wonderful skill and success of the great Scotch ovariotomist. And there would seem to be no impropriety in the spontaneous national eclat with which his name is everywhere greeted. This is a commendable national pride in her great men, similar to that of Greece and Rome, who honored their great men in life, and handed down their forms and lineaments to us in imperishable sculpture. Why should we of the nineteenth century be forbidden the expression of the noblest of the emotions, that of loving and admiring those who have attained excellence in their chosen life vocations, especially that of alleviating human suffering and prolonging valuable human life?

An eminent American divine thanked God for "the pleasure of loving and the luxury of being loved." We expect expressions of affection and gratitude from our clients. The pleasure of the practice of our profession consists much in these expressions. Why should we not expect it from the profession? If we do not, we acknowledge the domination of one of the worst elements of our nature. Should it be fostered or stamped out?

The little Island of Chios in the Egean Sea, already famous as the birthplace of the immortal Homer, and also for the excellence of its wines, produced two brothers, eminent sculptors. Their admiring countrymen caused this inscription to be engraved upon the pedestal of one of their masterpieces: "Thy sons, oh Chios, shall render thee yet more illustrious than thy vines."

California, our beloved State, already distinguished for her mineral and agricultural wealth, is yet young. But she has been richly

endowed with men not less distinguished in medicine and surgery than the other liberal professions—the arts and commerce. May we not confidently look forward to the day, not far remote, when it may be said of her: "Thy sons, oh California, shall render thee yet more illustrious than thy mines?"

REPORT ON PRACTICAL MEDICINE.

BY JAMES SIMPSON, M. D.

The wide range presented by the whole field of practical medicine will preclude me from attempting a full report of the advances made in this department. The task would be herculean, and my remarks will, therefore, be limited to what has struck me as new and progressive in the management of some half dozen of the diseases with which we are most familiar. It is not intended, however, that the term "new and progressive" shall convey the notion of any overturning of our tried and trusted methods of practice, but that a reflex may be given of some of the ideas constantly tossed to the surface in the prolific restlessness of our science.

PHTHISIS.

The doubt has been expressed by one high in the profession whether, with all our advancement in medical and collateral science, we combat disease with greater success than did our forefathers. In no disease does this doubt hold with more force than in phthisis pulmonalis. There is a tendency to empiricize on this disease which is much to be regretted. Professor Rokitansky, the younger, has astonished the world with the statement that the benzoate of soda, by inhalation, will cure consumption, and the demand for the drug rendered it for a time quite scarce and high-priced throughout Germany. This vaunting of marvelous curatives is not calculated to impress onlookers with the stability of our science. To many, the method of treating consumption, announced as the "Salisbury cure," is classed in the same category. This plan of treatment—for which Dr. Salisbury claims the most satisfying results—is based on the supposition that the disease arises from the fermentative processes set up by improper food; and the cure, based on this theory, consists of a carefully prescribed diet, chiefly of meats, together with the rigid observance of

hygienic rules, bathing, etc. The hereditary nature of tuberculosis is not admitted in this scheme, except as an influence producing a feebleness favorable to the invasion of the disease, the onus of its development being laid at the door of defective digestion and assimilation, bad air, improper food, etc. The existence of a distinct pre-tubercular stage is particularly insisted on, when proper treatment and diet may avert the disease. Now, although Dr. Salisbury's doctrine may seem to many of us untenable, the fact that it keeps open the question of the curability of consumption goes a long way in its favor. It has been too much the fashion to label consumption "incurable" and leave it there. Hereditary tendency has grown to be regarded as an enemy it is useless to fight. It is therefore a matter of congratulation to find that modern writers and teachers unanimously recognize a preliminary stage of consumption, dating far back of the first appearance of tubercular deposit. During this stage forces are at work—whether they be exposure, deficient food, nervous strain, or irregular habits—disturbing the nutritive functions, deteriorating the blood, and lowering the powers of vital resistance long before the advent of tuberculization.

SCARLET FEVER.

A larger dose of quinine than is usually given has been found of benefit here. To a child of four years, laboring under high fever and delirium, as much as twenty grains in twelve hours should be administered. And for two or three days after the amount should not be less than twenty-four grains per day. Jaborandi—or its derivative, pilocarpine—has been tried very thoroughly in this disease, for which its powers of elimination seem eminently adapted. Cautiously used, its effects in lowering pyrexia become well marked as soon as its action on the emunctories is established. Oiling the whole surface of the body is a palliative measure, which should not be forgotten. Gargles are condemned, but instead the atomizer, with disinfectants, can be used to advantage.

TYPHOID FEVER.

It seems that there is still something to unlearn as well as to learn in the treatment of this fever. Sir William Jenner, in a recent clinical lecture, says: "More lives may be saved by the judicious treatment, and more lives lost by the improper treatment, of typhoid fever than of any other disease." He believes that "little else is required, in a very large proportion of cases, than rest in bed, quiet-

ude, fresh air, pure water, careful diet, and in the third week alcohol in the shape of wine." To those who believe only in the efficacy of unremitting dosing this may sound strange. He particularly views with disfavor the habit of routine administration of medicines, holding that when special symptoms point to the use of a certain drug its use should be discontinued when the gravity of the symptom for which it was prescribed has subsided. Professor Jacobi speaks well of the cold bath in typhoid of children, and uses as an antipyretic the neutral tannate of quinine, which possesses the great advantage of being easily administered. Alum, he holds, is the best hemostatic in hemorrhage from the bowels. In glancing at the different modes of treating this disease at the hospitals of the large cities, I notice first the increasing tendency to regard stimulants as merely a remedy to be used if certain ataxic symptoms are present, and not as a regular stand-by all through the fever. It seems also to be the impression that, while quinine is highly serviceable, large doses do more harm than good, by increasing the delirium and the gastric irritability, a belief to which I subscribe most cordially. And, strangest of all, I find a widening skepticism as to the indispensability of the oil of turpentine, a remedy which for fifty years has held undisputed sway in this country as the sheet-anchor in typhoid. The question as to whether turpentine possesses the power of dispelling meteorism is, it seems, again *sub judice*, many denying that it possesses that property. Dr. Jenner directs attention to a complication of typhoid fever not usually mentioned—spleen disorder. Tenderness in the left hypogastric region is, he says, often met with, due to enlargement of the spleen, one of the symptoms of most of the acute specific diseases. Tenderness of the spleen usually reaches its maximum in the third week, and is liable to be mistaken for local peritonitis. Hot fomentations over the organ are found of service in this condition. Bartholow advances a specific treatment for this disease, which is entitled to our careful consideration. It is the administration of iodine for the purpose of destroying the germs of typhoid. It is an application of the antiseptic principle to the "internal atmosphere," iodine having, as has been well ascertained, the power of destroying the disease germs in the discharges from the intestinal canal. Five drops of the tincture or preferably of Lugol's solution, may be given three times a da He also gives calomel in ten-grain doses for three or four days duri the first week of the disease.

LIVER DISORDERS.

Without flatly asserting that cases of consumption may originate from a disordered function of the liver, I am convinced that a faulty action of this important organ is the most fertile of the predisposing causes of that disease. The liver is, as Dr. Horace Dobell points out in an admirable paper on the subject, the great intercepter of oil, which it utilizes for the formation of bile. If, however, the functions of the liver are imperfectly performed, the accumulation of oil in the cells becomes a source of serious disturbance. The liver being loaded with more oil than it can manage to deal with, the hepatic cells become so distended therewith as to stop the secretion of bile, obstruct the portal circulation, and lead to the well known consequences of portal congestion—impaired appetite, depraved digestion and assimilation, gastro-intestinal catarrh, etc. In such a condition the use of cod liver oil but complicates the mischief and favors still further dyscrasia; pulmonary congestion follows and blood spitting; emaciation creeps on by slow and certain steps, and the rift widens, until consumption at length rears its hectic flag upon the citadel of life. To relieve the hepatic congestion and secure the normal outpour of bile, Dr. Dobell recommends small repeated doses of podophyllin, with chloride of ammonium and chlorate of potassa in addition, and the use of saline aperients. These means of depletion must not, however, be carried too far. The diet must be arranged by what he calls "dietetic maneuvers," that is, the cautious introduction of the hydro-carbons, carbo-hydrates, and albuminoids; and all food should be submitted to artificial pancreatization by the administration of pancreatine, which emulsifies the fats.

ACUTE RHEUMATISM.

Dr. Robert Bartholow has added to our knowledge of the therapeutics of this condition in an able clinical lecture. He sees a great source of error in treating the disease homogeneously, and recognizes three separate types of patients, each type requiring different treatment. They are, first, feeble, andemic, nervous subjects; to these he gives thirty minims of the tinct. ferri chlor. every four hours, wraps the joints in cotton, and, if they are very painful, applies small blisters around them. A laxative of Rochelle salt is given occasionally. These cases thus treated get well in two weeks, without

heart complication. The second are the fat, flabby subjects, and they require the alkaline treatment, namely, two drachms of potassium carbonate every two hours until the urine ceases to be acid, when the amount may be much reduced, and after the fifth day quinine or iron added. This class are also supposed to get well within two weeks. The third class are vigorous subjects, often with hereditary tendency. These require salicylic acid in scruple doses to the extent of two, three, or four drachms in the twenty-four hours. It should be given in solution with an excess of alkali. This sometimes effects a cure in three or four days, but if it turns the stomach or depresses the heart it must be stopped. If, moreover, after three or four days, it produce no improvement, it should not be persisted in. Opium is to be avoided in either type of the disease. When an anodyne is necessary, atropia hypodermically near the affected joints will be found useful.

PNEUMONIA.

In the statistics of this disease collected by A. Brach in the three hospitals of Vienna, from 1866 to 1876, it is found that the lung most often affected is the right one, and that the mortality reached as high as one in four and a half. Dr. Handfield Jones has, in one of the London hospitals, used ergot to control the lung inflammation, but it has in the main disappointed his expectations. He relies on opium to allay the pain; digitalis, ammonia, and alcohol to strengthen the failing heart; effervescing salines, with or without a dose or two of calomel, to quiet gastric irritation, and, if hyperpyrexia become dangerous, quinine in large doses. Leyden, of Berlin, draws attention to the frequency, especially in the old, of retarded resolution due to weakness of the heart. This condition may last for months, or it may quickly terminate fatally from pressure of the exudation on the vessels of the diseased lung, for when this pressure becomes greater than the feeble heart can overcome, death of lung tissue or gangrene necessarily ensues. Here is pointed anew the moral of the later treatment of pneumonia—the treatment which, recognizing in heart failure the chief enemy to be dreaded, prefers to stimulate rather than to depress, to spur rather than to weaken, to support rather than to antiphlogize. This is not the expectant plan; it is a distinct course, pursued with a definite object in view. In France the use of depressing agents is still relied on. Bucquoi *(Gazette des Hopitaux)* claims that the favorite and most successful treatment in France is

depletion by tartar emetic, followed by tonics after emesis has lowered the temperature sufficiently. According to the same writer the leading authorities of the French school believe that the removal of four hundred or five hundred grammes of blood, at the outset of the disease, will not in any degree lower the bodily strength.

To enumerate and describe all the newer remedies, and all the new applications of old remedies, would occupy too much of the time of the Society. Mention deserves to be made, however, of

Quebracho.—This is the bark of a tree of the cinchona group, indigenous to Peru. It is reported (I have not yet been able to procure it myself) to possess remarkable power in relieving certain forms of dyspuea. Under its use the cyanosis of impeded respiration quickly disappears, the lips and face regain their normal color, and the breathing is sensibly relieved. Its efficacy is most apparent in the dyspuea of pulmonary emphysema, of heart enlargement, and of bronchial catarrh. Dr. Birkart, of London, found in all these cases a teaspoonful of the fluid extract afford immediate relief; three minutes after its administration the pulse became somewhat fuller, the breathing easier, the face flushed and moistened with a gentle perspiration and slight drowsiness. After these symptoms subsided the breathing continued to be improved. It is to be hoped that further investigation will not disappoint our expectations of what promises to be a most invaluable remedy.

Picrotoxine.—This is the alkaloid of cocculus indicus, and has been found highly serviceable in the night-sweats of phthisis, by Dr. Murrell. It is given in doses of the 1-100 of a grain, in aqueous solution.

Thymol, obtained from the oil of thyme, has found its place as a useful antiseptic, although not equal to others now in use.

Our list of anti-diarrhea remedies has been enriched by an Asiatic product, *coto bark.*

The value of *codeia* as a remedy for phthisical and other coughs is sustained by the testimony of Bartholow and other authorities. The former ascribes the superior virtues of codeia to its selective action on the pneumogastric nerve, allaying irritability of its end organs. It is about one half the strength of morphia, and is less excitant, and less nauseant than that agent.

Anæsthetics.—The new anæsthetic bromide of ethyl, or *hydrobromic ether*, is acquiring considerable reputation for producing anæsthesia, with less tendency to induce vomiting than ether or chloroform. Affecting the system more rapidly and being more quickly

eliminated, its after effects are less unpleasant. To Dr. Lawrence Turnbull and Dr. R. J. Levis, of Philadelphia, we are indebted for its introduction and careful reports upon its properties. It usually produces anæsthesia in two or three minutes—sometimes four; and consciousness returns in two or three minutes after its administration ceases. It is given (according to Turnbull and Levis) "on a handkerchief or small napkin folded up to a space of about four inches square, and then laid on a larger napkin folded so as to be large enough to cover the entire face of the patient." About two drachms are poured on the napkin to begin with, and a drachm is added afterwards at intervals, as required. Hydrobromic ether has been administered in Philadelphia as an anæsthetic about two hundred times, and it is greatly lauded by those who have used it. Dr. Levis expresses the conviction that it is practically the best anæsthetic known to the profession.

NITRO-GLYCERINE.

This drug has lately come into favor as a curative agent, and deserves some notice here. It is a transparent, colorless, oily fluid, slightly soluble in water and freely in alcohol and ether. It has a pungent taste. Taken in very small quantities it produces a fullness and violent pulsation in the head, a choking sensation about the throat, and severe headache, with nausea. The giddy feeling and headache often persist for some hours. No fatal cases of overdose are yet recorded. Its effects are much like those of nitrite of amyl. It is used as a remedy for neuralgia, in doses of a drop or two of a one per cent solution in alcohol. Cases have occurred of obstinate neuralgia in women yielding to a few doses of this remedy. Its value in tetanus chorea and sea-sickness is not yet fully determined. But as a remedy for anguia pectoris it is found of the utmost service, effecting, in many instances, not merely temporary relief, but a permanent cure. It is in regular use in some of the London hospitals in the treatment of the above mentioned diseases.

NON-ASYLUM TREATMENT OF THE INSANE.

Before closing my report, a few remarks may not be out of place relating to the war now being waged on lunatic asylums, both on this and on the other side of the Atlantic. Dr. W. A. Hammond, the Rupert of medical polemics, is leading the attack with his usual impetuosity. He advances the assertion that asylums are not cura-

tive, but rather injurious and pernicious in their influences, and claims that ordinary cases of insanity, omitting the violent, should as legitimately fall to the care of the general practitioner as cases of heart or lung disease. He adduces proof of the existence of terrible abuses in the asylums of New York State, and says "it is only necessary to visit any large asylum to perceive that the therapeutics run in ruts which routine has cut, and that little or no effort is made to inquire into the normal cerebral organization of each particular patient, the character of his or her intellect, emotions and volitional powers, the existence or non-existence of disease in other parts of the body which may act as an exciting or predisposing cause of the cerebral disorder, etc. I feel, therefore, justified in making the assertion, and I do so with a full sense of its importance, that a general practitioner of good common sense, well grounded in the principles of medicine, with such a knowledge of the human mind and of cerebral physiology and pathology as can be obtained by study, and familiar with all the clinical factors in his patient's history, is more capable of treating successfully a case of insanity than the average asylum physician." Some powerful and caustic articles on the same subject have also appeared in the *British Medical Journal*, from the pen of Dr. Bucknell, editor of *Brain*, who describes the keeper of a lunatic asylum as "part physician, part hotel keeper, and part jailer." Admitting the truth of much that has been said by these gentlemen, the doubt still looms up strongly whether the abolition of the restraint of an asylum is either practicable or desirable. Certainly on this coast agitation on the question must be regarded as superfluous, for here the medical treatment of the insane is all that could be wished, the superintendents of our asylums men of unquestioned ability, and the management of their institutions a credit to the State.

SUPPLEMENTARY REPORT, BY L. R. WEBSTER, M. D.

Dr. L. R. Webster, of Grass Valley, California, submits a short communication on the value of counter-irritation and his method of employing it in the treatment of pulmonary disease. He thus writes: "Counter-irritation in various ways has been used by the medical profession for centuries past. During my professional life I have been called upon to treat a large number of patients suffering from lung trouble. I consider that it is almost indispensable to use counter-irritation as an adjunct to other curative measures. For

some years past I have been using a simple instrument of my own invention, which I consider a great help in controlling disease of the lungs. The instrument consists of a cylinder, an inch and a half in length, and three quarters of an inch in diameter. Through the center of this, running lengthwise, is a small steel rod, projecting a short distance beyond the cylinder at each end. A piece of sole leather, filled with needles about one eighth of an inch apart, is stretched lightly around the cylinder, so that the needle points project a short distance. A convenient handle is so adjusted as to allow the cylinder filled or surrounded with needles to revolve. A little pressure upon the handle, combined with a forward movement, will enable the operator to run over a space of six or eight inches in a few seconds; and, although a very formidable looking instrument, yet the use of it causes but little inconvenience to the patient. I then take a mixture composed of glycerine and croton oil of equal parts, and apply by means of a camel's-hair brush. I have been able to remove very severe pain almost instantly in this way sometimes, and in all cases I have found benefit from its use. So far as I know, this plan is new to the profession, and I present it for what it is worth."

SUPPLEMENTARY, BY E. B. ROBERTSON, M. D.

SAN ANDREAS, (Calaveras County, Cal.,) January 14th, 1880.

JAMES SIMPSON, M. D.—DEAR DOCTOR: In response to your circular letter, asking a contribution for the Committee on Practical Medicine, I offer the following on intermittent fever, as observed by me in the foothills for some years past:

During the last session of the California State Medical Society—I write from memory—one gentleman advanced the theory that water, changed from its natural channel and used for irrigation, had proved productive of intermittents and other malarious fevers. Another member said, by way of reply, that such was a frequent result, but that, after having prevailed for a few years, the disease usually disappears, and the locality would become as healthy as before. I have seen sufficient examples to induce me to concur in the latter opinion.

I will offer you some illustrations. In the year 1854 the Mokelumne Hill and Campo Seco Canal and Mining Company completed their canal to Campo Seco, and constructed a reservoir which covered some twenty acres or more. The Town of Campo Seco is situated on either side of the ravine, something more than one mile

west, on the same gorge and below the reservoir. The people in the village and its immediate vicinity built dams across the ravine, which were soon filled with slum; then, by manuring and cultivation, they raised fine vineyards, gardens, and orchards on the made land thus obtained.

In the Summer and Autumn of 1870 intermittent fever made its appearance for the first time; and then to 1873, inclusive, nearly every one who lived there suffered from the disease; those who did not were only exceptions to the rule. Since 1873 the disease has disappeared, or at most there has been only now and then an isolated case.

The above history may be repeated as to the line of the Calaveras River to the extent of twenty miles, viz: from immediately below San Andreas to Jenny Lind.

Near Beal's Ranch, nine miles eastwardly from Campo Seco, was a small reservoir some days full of dirty water, and others quite empty, with its slummy bottom exposed to the sun. Seventy-five or a hundred yards eastwardly from the margin of this reservoir was situated an Indian camp or village, with some twenty or thirty inhabitant aborigines, nearly all of whom were afflicted with intermittents durthe Autumn of 1872. I was called upon to treat those Indians, and advised them to move to a more healthy locality. Soon after their removal they all recovered. The next year—1873—they having returned to their old camp, again suffered in the same way; but since then the malaria seems to have exhausted itself, or at least those Indians have had no more of the disease.

TREATMENT.

The treatment most successful in my hands is to break up the paroxysms with calomel and quinine, and after that give the following until the sixty pills are all used, after which a relapse is not likely to occur:

Dr. Peck's anti-malarial pills, Visalia.—R. Strychniæ Crystal, Acidi Arseniosi aa gr. iii; Quiniæ Sulph., Ferri Redacti aa ʒiss; Mellis Despumat. q. s. M. ft. M. et. in pil. lx div. Sig. One pill after each meal.

REPORT ON SURGERY.

BY JAMES MURPHY, M. D., CHAIRMAN OF THE COMMITTEE.

TO THE MEMBERS OF THE CALIFORNIA STATE MEDICAL SOCIETY—GENTLEMEN: The President of this Society having honored me by a request that I present to you a report on the Progress of Surgery during the past year, I realize that, in the fulfillment thereof, my path is strewn with almost insurmountable obstacles; for to classify and reduce to order the reports of societies for medical improvement, or to rehearse the history and result of operations which have transpired during the year, is a task of rare accomplishment; for many of these reports and histories had better sleep in the grave where silence would commit them together, perchance, with the subjects they treat upon.

In this most important branch of our art the subject of greatest interest has been to ascertain the best mode of preventing blood poisoning in wounds, whether brought about by accident or surgical interference.

I will here state that a rivalry of the most active kind has lately sprung up on this subject, first among individual surgeons, extending therefrom to institutions, and thence even to nations, each heralding its results, and each vieing with the other in the mighty struggle to save human life; and "still the strife goes bravely on," and we hope will so continue until the name of blood poison will be expunged from the list of surgical diseases, or, if ever met with, it can be as easily controlled by remedies as potent as those which are now used to defend the patient against this bane of our science.

By blood poison, we mean a matter capable of producing or promoting putrefaction.

To Lister belongs the honor of introducing the antiseptic mode of treatment, now most generally adopted; and, notwithstanding the splendid array of statistics and the responsible evidence brought forward in its favor, it has been accepted with great reluctance by leading surgeons.

Lister's method is founded mostly on Pasteur and Kisber's theory—that putrefaction can only take place through the influence of minute organisms (the cocco-bacteria septica), in the same manner that yeast is produced by the yeast fungus, and that it is only necessary to exclude these organisms from the wound—or, in other words, to defend the patient from the possibility of these organisms coming in contact with a wounded surface, and at the same time establish drainage, when blood poisoning cannot possibly occur.

He prescribes certain rules during the operation and at subsequent dressings, all of which tend to destroy the bacteria which may come in contact with the wound, whether by the hands of the operator, instrument, sponges, dressings, or by atmospheric contact.

The operator and assistants are required to cleanse the hands thoroughly, and then wash them in a solution of about five per cent carbolic acid water; the skin over the part requiring interference is also washed, and during the operation a spray of two per cent solution of carbolic acid is thrown on the wounded surface—the rubber drainage tubes of Chassaignac are introduced, clipped off even with the surface, and all outward dressings carbolized and covered with a rubber shield.

Many leading surgeons throughout the world, however, have adopted an antiseptic mode of treatment, in a modified form, for the following reasons:

That it is not certain that the bacteria is as poisonous as represented, having been found in wounds treated by the Lister plan—absolutely closed to all communication with external air—and which, therefore, could have only reached that location through air inspired by the lungs; and, consequently, that the Lister plan affords no guarantee against the presence of bacteria.

That there is danger of poisoning by the continued and excessive use of carbolic acid, as recommended by Lister; and that it produces a form of dermatitis which is extremely annoying to the patient.

That other antiseptics are equally efficacious, less irritating and poisonous; that in scrupulous cleanliness, thorough drainage, and good ventilation, (enjoining upon all nurses and students who may be in attendance upon the patient the frequent washing of the hands, sponges, and all appliances used in surgical dressings,) far better results are claimed for this mode of treatment, and its advocates challenge the Listerians to compare statistics; and, while they do not accuse the Listerians with falsifying the records, it is broadly hinted

that they pass by many cases of blood poisoning as we would a disreputable acquaintance whom we are loth to recognize.

I would further state that those who do not follow Lister do not condemn him, but, on the contrary, give him due credit for having brought about the splendid results obtained by both methods, and advise a thorough study of his *modus operandi*. But, as septic surgery is still in its infancy, it is to be hoped that a maturer age will place a halo around it which an adverse theory will never dim.

Those of you who have read Spencer Wells' writings on ovariotomy and his wonderful success in performing that formidable operation, where the tearing away of adhesions, the use of the actual cautery, the application of powerful styptics, and the removal of the omentum, have produced not only comparatively little constitutional disturbance, but rapid recovery, will wonder why abdominal section is not more frequently performed in the many cases which seem to demand it, and where death is sure to follow. I speak of wounds where there is hemorrhage within the abdominal cavity, intersusception, twisting, imprisonment of the intestines by adhesion, impaction, morbid growths, rupture, and other conditions which manipulation and medication had failed to relieve.

The real danger would seem to lie in not operating early and before the patient had passed into that moribund condition when, unfortunately, most of these operations have been performed, and which has brought them into bad repute.

Since antiseptic treatment is now generally used and the danger very much lessened, some of our leading surgeons advocate its early performance as a remedy in any condition requiring immediate surgical aid; and, viewed from a common sense standpoint, together with the evidence produced in its favor, we wonder that it was not sooner adopted.

Dr. Biglow, of Boston, during the past year has perfected an operation for the removal of urinary calculus, which I believe will supersede the operation of lithotomy. He names his operation Litholapaxy, and it has now been so thoroughly tested that it seems upon the eve of general adoption.

It differs little from the well-known operation of lithotrity, only in these particulars: The lithotrite is a great improvement on the one formerly in use; also, various sizes of canulæ for discharge of debris, which empties into a rubber or glass vessel in which a vacuum is formed; the crushing and evacuation is repeated until the entire mass is removed, which may be done at one or two sittings, and cal-

culi of the largest size are removed, the patient being rarely confined to bed more than one week.

Of one hundred and seven cases operated on by various surgeons, but six deaths occurred, giving a mortality of one in eighteen cases. This is an excellent showing, as the fatal cases were old persons who were thoroughly broken down by renal diseases.

In lithotrity, concretions of one inch in diameter were seldom attacked, while in litholapaxy there is no limit which bars removal.

Cholecystotomy, or section of the gall bladder, is an operation now advocated in cases of impacted gall-stone, where death is almost certain.

A case is reported to the Royal Medical and Chirurgical Society, performed by Dr. Hanfield Jones, who advocates its more general performance. He removed a large impacted gall-stone, with successful result. Another case is recorded by Dr. Lawson Tait, of London, the patient being a female, where two large gall-stones were removed, one being impacted, the success of each operation being attributed to antiseptic treatment.

In gynæcology, removal of the uterus, hysterotomy (or hecterotomy as it is sometimes named) is an operation now advocated. It was first performed by Kimball, in 1853, and statistics upon its success were watched with a great deal of interest. It, however, gradually fell into disfavor, and its performance was pronounced professional murder by some of our leading surgeons.

This last year, however, a change of opinion has taken place in this regard. Since the introduction of antiseptic surgery, statistics have shown such a large number of recoveries as to justify the operation under certain circumstances.

M. Tillaux, of France, who recently presented to the Academy of Medicine a patient upon whom he had operated, gave certain conditions in which, in his opinion, the operation was justifiable, namely:

First—When the tumor causes intolerable pain.

Second—When the patient's life is threatened by obstinate hemorrhage.

Third—When the tumor presses upon a portion of the intestines, producing occlusion.

In Tillaux's case the ovaries were not removed.

M. Duplay collected fifty-five cases of the removal of the entire uterus, in which there were twenty-three recoveries and thirty-two deaths, giving a mortality of fifty-eight per cent. He performed the

operation twice in the Hospital Saint Louis with fatal result. The antiseptic treatment was not used in his cases.

California has two successful cases to report, the operator being Dr. Lane, of this city.

Your reporter has had one case in his practice, which terminated fatally.

I have no doubt there is not a member of this Society who has not been often brought in contact with cases of great deformity, caused by un-united patella, or olecaranon process.

Since the introduction of antiseptic surgery has deprived the operation of opening joints of most of its terrors, wiring together the fractured ends of these bones is now resorted to quite frequently, and with good results.

Dr. Hector Cameron, of Glasgow, is said to have been the first to perform this operation on the patella, Lister having first successfully operated on the olecaranon.

Many successful cases are now reported, and it is urged to operate early and before the joints have assumed a condition which would only add to the dangers and difficulties of making a good result.

Esmarch, when he gave to the surgical world his bloodless method of operating, was, no doubt, unaware of the many uses to which his elastic bandage would be applied. Many cases are recorded during the last year wherein the use of this bandage has produced marvelous results.

I speak of aneurisms of the extremities—diseased conditions of the knee and ankle joints from injuries generally and of a chronic character—in acute inflammation in joints, where there is effusion, by controlling the flow of blood to the part.

It is also used to good advantage in nearly all pathological conditions of the joints—such as weakness, relaxation, pain on motion, and in diseases of the bursum-mucosæ, such as housemaid's knee. After removal of the fluid by aspiration, its success has been perfect.

In varicose diseases of the leg, when used properly and carefully, and when there are ulcerations connected therewith, it is said to produce a rapid and permanent cure.

In skin diseases of the extremities—such as ecthyma, elephantiasis, and psoriasis, etc.—it is said to effect a rapid cure.

In adenoid and fatty tumors of the breast, Dr. Bontuco, of New York, recorded several cases of arrest of growth and complete obliteration by its use.

And I fear I would tire you were I to enumerate the various purposes to which this bandage is now applied, and the well attested success which has attended its judicious use.

Transfusion, of late, has been practiced but little, owing, no doubt, to the barren results obtained from an operation where so much was expected. No good reason was given why an operation, which in theory seemed certain of success, so often failed in practice. These failures were attributed to the complicated instruments generally in use for this purpose, and the confusion which attended such operations. Occasionally its failure was attributed to *shock*, and more rarely to septicæmia.

Since a number of recent recoveries are reported where transfusion seemed utterly hopeless, inquiry has established the fact that success was due mainly to a simple instrument, without valves, which carried the blood from the vessel of one individual directly to that of the other requiring transfusion, the operation being conducted on a thoroughly antiseptic plan, and which prevented the admission of poisonous germs into the circulation, and thereby assuring the success which theory had long wished for.

SUPPLEMENTARY REPORT ON SURGERY.

A CASE OF STRICTURE—EXTRAVASATION OF URINE.

By E. B. Robertson, M. D., San Andreas.

Peter Schram, aged sixty years, of feeble health, was admitted, August 15th, 1879, to the Calaveras County Hospital. Upon examination he was found to be suffering from an immense swelling of the perineal region, with great distension of the scrotum and penis, the result of extravasation of urine. He had not passed any urine during the preceding four days and nights.

The patient was placed on an operating table—not unlike that used, and I believe invented, by Dr. R. Beverly Cole—his hands were fastened to his ankles by means of a few turns of a roller, as for lithotomy; the perineaum brought near the end of the table, and a suitable seat placed where I could sit convenient to my work. I will digress to say that the only assistance was such non-professional aid as I could pick up around [illegible] hence no anæsthetic was used.

A curved steel sound was introduced down the canal to, and held firmly against, the coarctation, by an assistant, who at the same time raised and held up the scrotum with his other hand.

The index finger of the left hand being placed in the rectum as a guide to the knife, an incision was made, commencing about one inch anterior to the margin of the anus, and continued along the raphe of the perinaenum to the base, or rather into the base, of the scrotum, which incision was cautiously deepened until the point of the sound was arrived at, which was about three fourths of an inch anterior to the bulbous portion of the urethra, opening several deposits of extravasated urine and pus. The canal was opened at a point near the coarctation by a longitudinal incision upon the sound, which was then slightly withdrawn, and a small silver director inserted, upon which the stricture was laid open. But the description is much easier than was the accomplishment. The stricture was found to be excessively hard, tortuous, or zigzag, and was nearly an inch in extent, and it was impossible to cause the director to follow the track except a very little at a time in one direction, then cut as far as advance was made, then try some other direction, and in this way about an hour's time was consumed; but patience and care, in operations of this kind, will accomplish much. Finally, having passed the obstruction, the director slipped into the bladder without difficulty, when a large quantity of urine escaped; then, by changing the small director for a larger one, and turning its groove upwards, it was an easy matter to pass a No. 12 gum catheter, which was retained for four days. At the end of four days several abscesses or collections had taken place in the scrotum, which were opened by free incisions; the catheter was removed and a new one supplied in its stead and retained two days, after which the canal was dilated occasionally with steel sounds.

The destruction and impairment of the perinaeal region by the extravasation of urine was considerable, as the parts united very slowly, and finally a fistulous opening of about the capacity of a small goose quill remained patulous in spite of all treatment, and through it a small quantity of urine passes during the act of micturition.

This is the tenth case in which I have operated for stricture by the perinaeal section, and the fourth in which extravasation had previously occurred, but the first wherein I have failed to secure perfect closure of the fistulous opening.

REPORT ON HISTOLOGY AND MICROSCOPY.

BY W. S. THORNE, M. D., CHAIRMAN OF THE COMMITTEE.

The current literature upon normal and pathological Histology has been singularly meager during the past year. While it is true that the study of human histology must ever prove both interesting and profitable, still the subject which more immediately concerns the advancement of medical science and the welfare of our race, is the investigation of those morbid elements, whatsoever they are, that stand in the relation of immediate or proximate causes to disease. Von Humboldt has truthfully said that no subject presents more complex and difficult phases than the study of diseases in relation to their cause. Certainly there is nothing of greater practical importance than a knowledge of the essential nature of those subtile poisons which give rise to self-propagating or contagious diseases. By some the contagium is held to be a subtile poison, not recognizable by the senses, and that must forever remain unknown; by others it is held to be matter in a gaseous state, or as matter that may exist as a solid, a vapor, or in solution; while others have pronounced it an albuminoid substance, undergoing rapid chemical changes. These theories—for they are still within the domain of speculation—have borrowed color of probability from the fact that the *materies morbi* finds ready conveyance in the air, food, and water, as well as by the more direct medium of human intercourse.

Again, another corps of observers—among whom may be reckoned Budd, Tyndall, Beale, Pasteur, Schroeder, and Crookes—have demonstrated microscopically the existence of minute bodies in the air, atmospheric dust, and in the tissues of the body, both in health and disease, as well as in the atmosphere of malarious and insanitary localities. These minute bodies, some of them only visible by the highest powers, have been designated germs. *Germen* we find comes from *gerere*, to bear or produce; hence, the term can only be properly applied to something which lives and is capable of growth. And this

is one of the essential characteristics of the so-called disease germs. They are believed to grow like other living matter of plants and animals; they may increase by division and subdivision, thus indefinitely producing their own kind; or, like the germs of the ovum, they may evolve higher types with special powers. A germ, therefore, is a living particle of matter, growing or capable of growth, and, excluding the idea of spontaneity, must have been derived from some pre-existing form of living matter. Disease germs are believed to be living particles of matter, possessing these characteristics—and, finding within the body suitable environment, they may increase and multiply indefinitely. By some, both contagious and malarial diseases are believed to depend upon certain species of low, simple, vegetable organisms of definite character, produced in the outside world, independent of animals or man, and by others that these germs have or do originate in man himself, and are to be regarded as degraded forms of living matter, by direct descent from a pre-existing living organism.

The vegetable germ theory has derived great plausibility from the fact that bacteria have been demonstrated in the blood, tissues, and secretions during morbid or diseased action, but its supporters are reported to have failed in their attempts to connect any constant form of bacteria with particular forms of contagious diseases. Dr. Obermier has demonstrated the existence of spirilla in the blood during the paroxysms of relapsing fever, and he shows that they disappear during the intervals. Salisbury has likewise been able to show the existence of bacteria in cases of malarial fevers. But it is argued that the minute germs, often less than the one hundred thousandth part of an inch, from which bacteria are developed, exist at all times and in the most healthful conditions, in all the tissues and fluids of the body; and that they only develop into the familiar form of bacteria when morbid processes have been set up, and the vitality of the body lowered, and that therefore bacteria are to be regarded as the result of diseased action, and not the cause of it. These minute germs are believed to gain access to wounds during surgical operations, and finding suitable lodgment they multiply and excite dangerous and even fatal inflammatory or septic action. Upon this theory Professor Lister has after much patient and careful observation systematized his peculiar surgical methods, which are believed capable of excluding or destroying these pernicious organisms. The theory that contagious diseases are caused by vegetable germs derived from some source independent of the animal organism, is opposed by many,

notably by Dr. Beale, who has devoted much time and labor to this interesting subject. He holds with force and plausibility that the essential elements of contagium is living germinal matter derived from man or animals. That the contagious elements are particles of extreme minuteness, with difficulty seen with the highest powers. They are in reality microscopical portions of the tissues of diseased animals. They are given off in the breath, excretions, and in the various emanations of the body; and while so small as to be readily transmitted by the air, they are capable of indefinite vitality in high or low temperatures, and are potential when taken into the healthy organism of setting up precisely the same morbid action which existed in that form which they originated. These bioplasts are akin to pus corpuscles, in that they are capable of vital movement, and consist of degraded germinal matter derived from the bioplasm of the tissues. These germs are structureless, like a piece of mucus, and without definite shape, color, or consistence. They are analogous to those minute bodies observed in vaccine lymph which has been kept for some time in glass tubes. These particles are said to exhibit the most active molecular movement, and they have been proven to constitute the active portion of the lymph only. Similar germs have been observed in the contents of small pox vesicles; and Beale, Sanderson, and Crookes observed multitudes of these germs in the blood cerum, secretions of the mouth and intestines of animals affected with the cattle plague. And it was proven that these so called bioplasts were capable of propagating disease when inoculated into healthy animals. Each kind of contagious germ manifests its own specific action only. The germs of small pox will reproduce this disease, and so on, each contagion reproducing a condition similar to that which produced it. Disease bioplasts originating in the lower animals may find a fitting soil in man's organism, as witness the transmission of glanders from the horse to man. Contagious matter from purulent ophthalmia and gonorrhœa are believed to be transmitted long distances by the air, and yet retain its specific properties long after its removal from the surfaces where it originated. This mode of transmission of contagious diseases by minute particles of animal matter with vital potentialities finds analogy in the visible process of vaccination, and in the contagion of syphilis, gonorrhœa, purulent ophthalmia, glanders, and diphtheria. In contagious diseases we may reasonably believe that the breath and excretions contain imponderable germs of animal matter, endowed with properties

which we call vital, *i. e.*, motion and the power of growth, together with the specific quality of exciting in the healthy body morbid processes precisely similar to that from which they emanated; and though identical in their elementary forms and properties, they may as transcendently differ in their powers as the germs of the ovum, which though microscopically and chemically alike are yet so widely different in their histogenetic qualities.

REPORT OF COMMITTEE ON PUBLIC HYGIENE AND STATE MEDICINE.

BY M. M. CHIPMAN, M. D., CHAIRMAN.

MR. PRESIDENT AND MEMBERS OF THE STATE MEDICAL SOCIETY: We have the satisfaction of looking back upon a year, since our last annual meeting, of more than average healthfulness for the State of California, having been favored with an almost entire exemption from epidemic disease, and the reports of deaths from the ordinary prevalent diseases of the different localities indicate as little mortality, in proportion to the population, as during any like period since the occupation of the State by the American people.

The reports of the State Board of Health for the year 1879 show a slight diminution in the death rate from diseases of the respiratory organs, as compared with the reports for 1878, and a more considerable diminution from diseases of zymotic origin. There were only ninety-three deaths from diphtheria in San Francisco during the year 1879, as against one hundred and ninety-two in 1878, and seventy-seven reported from other localities, as against one hundred and seventy-one for the year preceding.

San Francisco was exempt from epidemic disease during the year 1879, and the reports of the local Health Office show the aggregate deaths, from all causes, to have been 4,311 for the calendar year, as against 4,740 for the preceding year; and estimating the population for each year at 305,000, these figures give a total death rate for the year 1878 of 15.54 for each 1,000 of the population, and for the year 1879 of 14.13 per 1,000, which is a lower rate of mortality than has ever before been recorded since the incorporation of the city, and adds another evidence of the correctness of the claim that this is one of the most healthful of large commercial cities.

The following table exhibits the causes of mortality for the year by classes, and the large number of Mongolian deaths, of which the causes could not be ascertained:

Zymotic diseases	626
Constitutional diseases	873
Local diseases	1,753
Developmental diseases	524
Violent deaths	237
Unascertained whites and colored	41
Unascertained Mongolians	257
Total deaths	4,311
Under five years of age	1,345
Seventy years of age and over	169

The violent deaths include homicides, suicides, and casualties.

After thorough investigation, I fully confirm the report of the committee of the Board of Health in reference to the Chinese quarter of San Francisco, and concur in the wisdom and justice of the ordinance declaring that quarter a public nuisance. Since the promulgation of the said order, by the peremptory direction of the Health Officer, efforts have been made towards cleaning up and disinfecting, but there are several localities within that section in which everything has been so long covered with dirt, and become so saturated with the emanations of accumulated and putrefying excrement, that it is only by the destruction of the present tenements, cleaning out the cesspools, and the application of disinfectants to the top soil, that the ground can be renovated and made wholesome sites again of human habitations.

A people so ignorant of sanitary laws, of such filthy and disgusting habits, so regardless and defiant of police regulations, and withal so totally oblivious of all moral principle, a people mostly of the lowest order of Chinese civilization, are unfit to have a dwelling place in the heart of a populous American city, and the city government should be empowered to assign them a location where their presence would be less obnoxious to the welfare and sanitary interests of the city, and none of that class should be allowed to live within the more populous districts except by special license of the city authorities.

Although the San Francisco Health Office inspection is, generally, pretty efficient, still the inspectors are not yet sufficiently impressed with the importance of looking closely after the condition of privy vaults and their position relative to wells supplying water for domestic uses, and there is a great deal of carelessness in the smaller towns and in the country districts concerning this same matter. Not only should the degree of porosity of the soil be taken into account, but as the underground flow of water is not unfrequently in a different direction from the surface flow, in case of sinking a well in the neigh-

borhood of a cemetery, cesspool, privy vault, or other unwholesome deposit, the direction of the underground current should be definitely ascertained.

Repeating prescriptions without orders is a great evil, the tendency to foster the habitual use of opiates and chloral not being the least of the bad consequences, and the rendering of law which makes the prescription the property of the party who receives it is not in accordance with the design of the prescription and hurtful in its effect. The practice is in part the fault of physicians themselves, in giving verbal orders to repeat, and if they would always strictly adhere to the rule of not allowing prescriptions to be repeated except upon written orders it would lessen the practice, and by adding to the prescription, "This not to be repeated without written order," or the interdict printed upon prescription blanks, might change the legal status of the matter.

As a preventive of alcoholism and other disease developed from the same cause, I would suggest a law making the furnishing of intoxicating drinks to habitual drunkards a misdemeanor subject to penalty, and although the public sentiment of the State will not consent to radical restriction of the liquor traffic, this more conservative measure might meet with greater favor, and if adopted would be productive of beneficial results.

Concerning the three great epidemic diseases—Asiatic cholera, yellow fever, and small pox—as we are guaranteed future exemption from neither of them, I submit the following: In the Consular mortality reports of a large number of the most populous European cities there appear only seven deaths from cholera during the last season, and in neither case was the disease, probably, of the Asiatic type. At Bombay, in India, there were ninety-seven deaths from cholera during the first half of last year, and mortality from the same cause at Pondichery; all of which was probably of the genuine disease, as it is said to be endemic in some parts of that country. But our neighbors to the westward, fortunately, for the time, separated from us by a wide aqueous interspace of earth's surface, during the past year suffered severely from this deadly scourge. The disease was imported into Japan from China in the Summer of 1877, and there were from 14,000 to 15,000 cases during that season, with a mortality of about 50 per cent. The following Winter it pretty much disappeared, and there were but few cases during the year 1878, but in April of last year it became active again, and, spreading throughout the empire,

continued its ravages during the entire season. Hon. J. A. Bingham reports, from Tokei, that from the commencement of the epidemic, in April, 1879, to December 27th, there were 168,344 persons attacked, with 101,364 deaths, 47,885 recoveries, and 19,095 remained under treatment at the date of the report.

Yellow fever, in the near future, will possess a much more immediate interest to the inhabitants of this State than it has heretofore, as the completion of the Southern Pacific Road will bring us much nearer to those cities which are exposed to its visits, and over a route much more liable to its transmission than the present route.

The Havana Yellow Fever Commission, consisting of three eminent medical men and one civil engineer, spent about four months' time, from July to November, on the Island of Cuba, investigating matters pertaining to that disease. They ascertained that yellow fever is endemic, and at times epidemic, at all the principal ports of the island, and especially at Havana, is every year epidemic, during the Summer season, and endemic the rest of the year. The sanitary condition of the several cities is very bad, particularly of Havana, rendered so by natural adverse circumstances, and the ignorance and indifference of the people in regard to such matters. The Commission estimate that in connection with water supply, sewerage, and other needed improvements, no less than twenty millions of dollars would be required to accomplish any decided sanitary improvement, in the City of Havana alone, and the people burdened by heavy taxes of the mother country, besides the support of their municipal and provincial governments, have no money to spare for such purposes. In fact the inhabitants and owners of the island are themselves better satisfied with the situation, in those respects, than are their commercial neighbors, for the germs of the disease, which is so deadly to the unacclimated, and pestilent in other cities, to the native born and acclimated are comparatively innocuous, and there is no other prospect but that the ports of Cuba will continue to harbor and to export, at times, the unwelcome guest to other countries, until by some unforeseen political convulsion or transfer the island may come under the control of a more enlightened and enterprising people. Small pox has made but a very small factor in the causation of mortality in the United States during the past year, the only epidemic of that disease having been at San Antonio, Texas, where it prevailed during the Summer and Autumn. That city in its population includes about six thousand Mexicans, who were opposed to vaccina-

tion, and would not report, and even concealed cases from the knowledge of the authorities, and although their ignorance and obstinacy endangered the lives of many others, yet they were themselves by far the greatest sufferers, the result being 125 deaths, mostly of that class.

The last death from variola in California was reported at San Francisco January 2d, 1878. During the three Autumn months of 1879, the only mortality from small pox exhibited in the reports to the National Board of Health, of over one hundred of the largest cities of the United States, was one single death, at New York City, on November fifteenth, and it is confidently believed that the disease had no foothold in the country during that time, except at San Antonio. But on account of the superstitious fear of vaccination, among the French Canadians, small pox has for a long time found refuge in the eastern provinces, the deaths at Montreal alone from this cause having numbered 272 during the Fall and Winter months. And it was from that source that the disease was brought back into the United States, appearing at Philadelphia, and in the District of Columbia in December, and cropping out at Worcester in January. But this fresh importation was closely watched, and not allowed to spread abroad, and for the three several communities proper defensive measures being taken, the resulting mortality has been comparatively light. From December sixth, the date of the first report of mortality, to the third of April, there was an aggregate of 74 deaths reported at the three places named, and two at Chicago, making 76 deaths altogether, from this last manifestation. And, after closely scanning all reports, I find for the past year, from the 1st of April, 1879, to the 1st of April, 1880, that the mortality from this disease at all other places in the United States was not more than equal to the deaths from the epidemic at San Antonio, or not exceeding 250 deaths altogether, for our 45,000,000 of population.

From the consular reports we find about an equal exhibit of mortality from variola on the British Islands during the past year, as in the United States. There were about 100 deaths in London from this cause during six months ending January thirty-first, and the disease nowhere else reported on that island, except a few cases at Liverpool, and in Dublin the average weekly mortality was a little less than in London, and the disease nowhere else present except a few cases at Belfast.

On the continent of Europe variola has been somewhat more prev-

alent, as out of forty-nine large cities, from which reports were received, twenty-four exhibit its presence, but not with sufficient virulence to add but little to the mortality of any of those places, except at the City of Paris, in which there were about one thousand deaths from this cause during the Fall and Winter months; and at Barcelona with a maximum of 23 deaths per week; and at Bucharest, in Roumania, where, with a population of about 206,000, the maximum mortality reached to 61 per week.

But crossing the Mediterranean into Northern Africa, we find that this same infection increased the mortality of the City of Tripoli during the Fall and Winter at the annual rate of 70 or 80 per 1,000, and accounts from Asia indicate that the old enemy is still at work there; but the reports are too meager to serve as criteria of the extent of its ravages in either of the two last named quarters of the globe. But turning to the south half of this continent, among the Spanish-American populations, we find there that the destroying virus has exhibited something of the old time energy, two notable examples being at Callao, Peru, where, with a population of 30,000, it caused 162 deaths during October, and at Valparaiso, Chile, where, with a population of 101,000, after several months' prevalence, the epidemic culminated in November, causing 678 deaths for that month, followed with 502 deaths during December and 347 in January.

This examination of the recent records shows that the ratio of the prevalence and fatality of the disease was very nearly in proportion to the degree of enlightenment and the completeness of the sanitary regulations of the countries and places mentioned, and by observing the entire exemption or very light mortality in those parts of the world where the specific preventive measure is most carefully attended to, remembering meanwhile the fearful epidemics which so frequently decimated the populations of those countries prior to the nineteenth century, and also taking into account the great mortality yet caused by this disease in those parts where vaccination is still disregarded or but partially practiced, will enable us to realize something of the inestimable boon conferred upon the world by Jenner's invaluable discovery. And this brief retrospect favors the supposition that this strictly infectious and contagious disease, this true cosmopolite, which respects neither race or color nor limit of latitude, altitude, or temperature, will continue to linger on the earth as long as there remain unenlightened nations for it to prey upon, and even when the more enlightened succeed in stamping it out from within their boundaries they know not

the day when commercial intercourse may bring it among them again, and the only price of exemption from its attack is continued vigilance in carrying out a thorough system of vaccination by legalized authority, compulsory when necessary, and free to the poorer classes, to be performed in early childhood, and followed by re-vaccination at puberty, all of which to be made matters of record and public exhibit. And the instructing the less advanced nations in the utility of vaccination, the proper method of applying, and sources of supply, and perhaps at times furnishing the virus to them gratis, would be an enterprise in the interest of humanitarian principles, of universal application.

By an Act of Congress approved March 3d, 1879, was created a National Board of Health, consisting of seven members, appointed by the President, and one medical officer of the army, one of the navy, and one of the marine hospital service, and an officer of the department of justice; and by an Act approved June second, to this Board, in addition to its other duties, was assigned the regulation and management of the quarantine and sanitary affairs of our foreign commerce, with the privilege of having medical men connected with the consular offices at such foreign ports as most require intelligent medical inspection.

This organization makes inquiries and investigations, in regard to the causes of disease, the character, efficiency, and relative cost of disinfectants, and as to the most effective plans and comparative cost of sewerage, etc.; and furnishes information to any part of the country concerning sanitary matters; and co-operates with municipal and State Boards of Health in arresting and suppressing epidemic diseases; and its officers rendered important services in the yellow fever epidemic of last season, and by the introduction of improved quarantine and inspection regulations accomplished a great saving to the commerce of that section of the country, as against the old system of blockading the lines of freight and travel under similar circumstances, which services were highly appreciated by the States and municipalities most immediately concerned.

A movement is now in progress by the leading sanitarians and sanitary organizations of the country, to induce the Government to call an international conference for the discussion and arrangement of international sanitary and quarantine regulations, and all medical men throughout the country are requested by the National Board of Health to unite their influence in this behalf.

At the close of the year 1879 there were seventeen State Boards of Health in active operation, besides five others, which either from failure of State appropriations or incompleteness of organization, had been unable, as yet, to get themselves into successful working order, and there is good prospect, at present, that some of the States yet without will soon by legislation add to the number.

The State Board of Illinois, in addition to its other duties, performs the functions which in this State pertain to the several Boards of Examiners, and in regulating the practice of medicine it has obliged the Eclectic College of Chicago to extend the time of its lecture term, and compelled 1,400 persons who had previously claimed to be doctors to either discontinue practice or leave the State. Midwives are now required, in that State, to pass an examination and procure a license.

Great Britain takes the lead of all nations in sanitary matters. Through the influence of the British Medical Association laws have been enacted from time to time, improvements effected, and regulations introduced, which have resulted in greatly reducing the death rates of her cities and public charity institutions and largely increasing the general prosperity of the country, and in the complete suppression of empiricism and irrational systems of medicine. This superiority, in these respects, as compared with the United States, is owing principally to the greater proportionate influence of the educated classes in their public affairs. But the equal participation of all classes makes it the more necessary that education should be encouraged and extended in this country, until a majority of the people shall be able to acquire an understanding of those matters which pertain to the public welfare.

Latterly, in the States to the eastward, efforts have been in progress to popularize hygiene by public lectures and publishing suitable articles for general reading, and Dr. J. S. Billings, in speaking of these measures in an address before the American Medical Association, said "that it was from the exploration of a Congressional Committee into, and the comments of the daily press upon, the causes of the yellow fever epidemic of 1878, that our National Legislature was induced to create a National Board of Health."

A very encouraging report has been made of an advance step in sanitary reform, in the formation of associations for private protective sanitation. This system of sanitary protection originated with Fleeming Jenkins, Professor of Engineering in the University of

Edinburg, and the plan was first carried into effect in that city in 1878, and, from the original, was last year obtained and introduced into Newport, Rhode Island, by Dr. H. R. Storer, of the last named city. The objects are, by association, to secure a more complete sanitary arrangement, and to provide advice and supervision in the construction and improvement of dwellings for its members, and advice as to the best means of remedying defects in the dwellings of such of the poorer class as its members may be interested in, at less cost than could be obtained by independent individual effort, and to aid in improving the sanitary condition of the city. The Association is not intended as a substitute for, but to encourage and supplement, municipal inspection. At a recent election in that city officers were elected of the reform stamp of the new Association, and the Council of the Association, composed of both lay and medical members, are doing everything possible to extend a knowledge of the new principle, and numerous letters of inquiry show that the subject is attracting much interest.

In this State these matters are receiving but little attention outside the medical profession, and although California was one of the first of the States to follow the lead of the old Commonwealth, in which have originated so many beneficent measures, in instituting a State Board of Health, yet the authority and jurisdiction delegated the Board have been rather limited, and the appropriations stinted, considering the power for good of such an organization, if furnished with adequate means. I believe it is generally regretted by the profession of this State that preventive medicine is not more appreciated by the people, and there have been some really excellent articles read before the medical societies and published in the medical journals of the State, which, with perhaps a little modification, would make very profitable matter for general reading; yet there has been very little public effort made to instruct the people and popularize sanitary measures, and I here suggest that, if the members of the State Board of Health would deliver popular lectures, and if the State Society would appoint a committee, representing different parts of the State, to lecture upon these subjects, that their efforts, if not resulting in pecuniary gain, would be likely to reap a rich reward in the consciousness of benefiting the people and advancing the public interests.

But the most effective course to bring aid and add force to the movement of sanitary reform would be by more extensive and more thorough education in those branches of science, by means of which

the nature and requirements of the human system are understood, and which form the basis of preventive medicine; and this might be done by encouraging the attendance at medical colleges, in addition to those intending to enter the profession, of others, who might attend with a view of acquiring a knowledge of anatomy, physiology, and chemistry only, or more especially of the two former branches, as chemistry might be studied elsewhere; and to this might be added, in case of persons desirous of engaging in scientific pursuits or sanitary investigations, a good knowledge of histology and microscopy. And instruction in anatomy and physiology should be made more extensive and thorough, by competent teachers in the schools; and by popularizing the study of comparative anatomy it might be made a very pleasant means of teaching the general principles of structure and function, and thereby largely increasing the amount of human knowledge in a most useful direction.

SUPPLEMENTARY REPORT ON PUBLIC HYGIENE AND STATE MEDICINE.

BY JOS. F. MONTGOMERY, M. D., OF SACRAMENTO.

THE IMPORTANCE OF PURE WATER AND AIR TO THE HEALTH OF INDIVIDUALS AND OF COMMUNITIES, AND THE MEANS BEST CALCULATED TO PRESERVE THEIR PURITY.

As my contribution to the report of the Committee on Public Hygiene and State Medicine, I propose to present some facts to show the importance of pure water and air to the health of individuals and of communities, and to offer some views on the plans or means best calculated to secure an ample and constant supply of the former, and to prevent the pollution or contamination of either.

Embraced within the scope of the great subject of State Preventive Medicine, no question of greater moment, or aim inspired by higher motive, can engage our attention, or command our earnest consideration, than the preservation of human health by guarding it well against the prolific causes of disease that lurk in the impurities of the elements prominently introduced in the title of this paper.

In two several biennial reports of the California State Board of Health, I brought to the attention of the public the prevailing evil of the adulteration of food, drinks, (alcoholic, vinous, or fermented,) and drugs, and urged its prevention or suppression by the most stringent penal enactments and police regulations that could be framed or enforced; and now I bring forward the subject matter just stated as even more deserving thoughtful and determined action than the other, since it concerns more vitally a much larger number of persons, while the causes of the mischief or diseases traceable to the impurities alluded to are far more subtle and difficult of detection.

The zymotic diseases, which are also denominated preventable, are either epidemic, endemic, contagious, or sporadic, and are held to be produced by some morbific principle or germ acting on the organism similar to a ferment, and these morbific causes must enter the system by one or more of three avenues—by the digestive organs, in the food or potable water we consume; by the respiratory organs, in the air we inhale, or by inoculation upon the surface of the body, or through the mucous membranes lining the outlets. This being the case, we cannot be too vigilant in guarding well these avenues, and in scrutinizing and testing the character of everything that enters them, employing all the means that science can afford, or competent and faithful officers execute, to prevent the mischief that may be apprehended, and that it is the mission of the sanitarian to avert. Directly or indirectly these causes are estimated to be responsible for at least nine tenths of all the cases of fever, and probably for a larger percentage of zymotic diseases generally, prominent among which, besides typhoid or enteric fever and many other affections, may be mentioned diphtheria, cholera in all its forms, dysentery, diarrhœa, and erysipelas. That these and other diseases do arise mainly from agencies contained in impure water and air is so generally conceded that it would seem unnecessary to present here any proof of the fact; but to impress the truth of the assertion the more strongly upon the public mind, to the end that it may be the better appreciated, and that adequate action may be induced to provide effectually against a great prevailing evil, I will cite a few instances that seem well to illustrate and establish the opinion advanced.

I had prepared detailed accounts of various epidemic outbreaks of different diseases, to show clearly that they arose from the use of polluted water, or from poisonous gases entering or pervading houses from cesspools, sewers, or other impure sources; but to incorporate

them into this paper would be to extend its length to an unreasonable degree, and to weary, probably, rather than to interest and intertain, the reader. I will, therefore, only state the occasions, and the results or conclusions arrived at, well attested and sustained after careful observation and consideration of the circumstances attending each case.

It is a disputed point whether typhoid fever, diphtheria, and some other zymotic diseases, arise spontaneously from filth. The affirmative of this question is very ably advocated by Dr. Thorne in a paper entitled "The Origin of Infection," read before the Epidemiological Society, and published in the *British Medical Journal* of June 8th, 1878, in which may be found all the arguments for and against the belief that a case of acute specific fever can arise independently of an antecedent case. After illustrating his arguments with typical instances which had occurred within his own knowledge, and giving the history of some investigations he had made into several outbreaks of diphtheria, he concluded in favor of the spontaneous character of some such acute diseases, by explaining that it is not at all a question of the development of a living organism out of matter independent of antecedent life, but merely the production by means of a process of evolution of that which gives to an already existing organism that property by which it becomes infectious—a property which it may perhaps lose directly it is deprived of the circumstances which favored its development.

But Dr. Thorne admits, as do others who agree with him in opinion on the disputed question at issue, that the matter is still *sub judice;* and while he and they hold to the views expressed in his paper quoted from, they do not deny that the diseases under consideration are generally self-propagating. On the other hand, the contagionists—or the advocates of the specific germ theory—maintain that no case of infectious disease can arise independently of a prior case, and to sustain their position point to the well-known fact that such disorders do largely owe their spread to communication, immediate or mediate, with former cases of the same disease.

As I am inclined to deal with matters of a practical and utilitarian character rather than to indulge in speculating or theorizing upon abstruse questions, I will not pretend to advance an argument in favor of either side. And whether the one party or the other be nearer the truth, or both be partially in error and partially correct, it is an indubitable fact that the presence of filth, and consequently

of impure water and air, contributes very largely to the development and spread of zymotic diseases, and increases materially their virulence and fatality. This is the practical question with which we have to deal, and our aims and efforts must, therefore, be directed to the great task of so disposing of the waste and heterogeneous matter, conveniently termed sewage, and which is continually arising and accumulating, to the annoyance and injury of man, as to divest it of all noxious qualities, and to prevent the pollution by it of either water or air, and even to some extent of the soil itself.

I had prepared notes, in manuscript, of twelve epidemics—seven of typhoid fever; one of typhoid fever, scarlatina, and diphtheria co-existing; three of diphtheria; and one of diarrhœa—all caused unquestionably by drinking water polluted with sewage or excremental matter, or from using milk contaminated with impure water, all the cases being vouched for by scientific and trained observers of high character, but I will not lengthen this paper by incorporating them fully into it.

One of the typhoid fever epidemics was caused on account of drinking water from a well poisoned by leakage from a sink into which the dejections, presumably containing specific germs, of a typhoid fever patient, who had contracted the disease elsewhere, were emptied. Two of these epidemics of the same disease were caused by the accidental admixture of the fœcal discharges, supposed to contain specific poison, of a single typhoid fever patient in each case, with the general water supply of two different towns—in the one case over two thousand cases having arisen, with over a hundred deaths, and in the other three hundred and fifty-two cases, with twenty-one deaths—thus showing what power for mischief water acquires when accidentally polluted, and what wonderful multiplication of the disease germs or infecting principle occurs under favorable circumstances. In two other of the epidemics of typhoid fever the use of milk from a particular dairy, in each case polluted by foul water, was set down as clearly the cause of the outbreaks, one of them having scarlatina and diphtheria to co-exist with typhoid fever, as being produced by the same cause. Another of the epidemics of typhoid fever was set down as having been produced by both air and water polluted alike by excremental matter, and two from the use of well water polluted by leakages from neighboring cesspools. The three epidemics of diphtheria were all clearly produced by the use of well water polluted in

consequence of communicating with cesspools in too close proximity to them.

All these epidemics occurred in England or Scotland, and the facts in reference to them were taken from English authorities that are unquestionably reliable.

The epidemic of diarrhœa occurred in 1879 in Hartford, Connecticut, and was regarded as having been undoubtedly caused by the substitution, on an emergency, of the river water for that from the reservoirs. On examination it was ascertained that a large sewer opened but fifty feet below the main inlet water pipe. By the tide and an eddy the sewage was set back directly over the inlet pipe, and was pumped up with the water. The onset of the epidemic was sudden, severe, and extensive, and limited to the region supplied by river water. Analysis showed the water to be very impure.

In the epidemics of cholera which occurred in England in 1849, 1854, and 1865, its spread by means of water polluted with its specific infection was convincingly proved, as stated in a lecture delivered before the National Health Society, by a greater mass of evidence than had ever been previously collected with regard to any other disease. The lecturer says, further, that "epidemics by the score—nay, by the hundred—might be cited in which the first cause has been the pollution of the water drunk by the persons affected. In fact, it has been one of our most familiar experiences that excremental fouling of wells is, in this respect, among the worst dangers which can threaten the health of communities, and other common water supplies are equally capable of spreading the infection."

In the Filth Report of Mr. Simon an abstract is given of the history of one hundred and forty-six epidemics of typhoid fever, investigated by the officers of his department during the four years from 1870 to 1873, inclusive, where, in all cases, great excremental pollution of air or water—generally both—was found to be the cause of the outbreaks. And from the many facts and opinions collected by me in my investigations, the inference may be fairly drawn, or the conclusion arrived at, that the virulence of the contagion of cholera and typhoid fever, as also of other contagious diseases, is much increased wherever surrounded with putrid matter. This conclusion would also apply to specifically infected drinking water which contains fermenting matter.

In all the numerous epidemics of milk typhoid, or milk scarlatina or diphtheria, the cause was the same—polluted water at the dairy,

which intentionally or otherwise became mixed with the milk, and thus contaminated it with the germs of disease.

Reports of Boards of Health, State or municipal, show that in this country many similar epidemics have resulted from the use of polluted water, chiefly from wells, but in some instances from rivers contaminated by sewage. In Massachusetts alone, it was recently reported by its State Board of Health that over five thousand (5,000) deaths had occurred in two years in that State exclusively from diphtheria, arising from all causes; and in this State, according to the Biennial Report of the State Board of Health for 1877–8, the deaths from diphtheria, arising as in Massachusetts from all causes, amounted in the two years to one thousand five hundred and twenty-six, as reported from only twenty-four localities in 1877 and thirty-nine localities in 1878, thus showing that the reports were partial only as regards the whole State. The same report places the deaths for the two years from zymotic or preventable diseases at five thousand five hundred and fifty, according to the same partial reports, being over thirty-nine per cent of the entire mortality—a large percentage.

And as to the extensive influence and potency of impure air as the cause of disease, by serving as the medium for the transmission of the germs or morbific principles of the zymotic affections, or of other deleterious agents, the proofs are numerous and convincing. To illustrate and establish this fact, I will again refer to English authorities, because they are more accessible, and are usually more satisfactory in detail on sanitary subjects than are other authorities I have consulted. From notes taken from reports of six epidemics of diphtheria, I find that sewer or cesspool gas was the cause of each and every one of them, as was abundantly shown by the most competent Health Officers, after careful investigations. But it is sufficient merely to state these facts, so well attested, without swelling the dimensions of this communication by giving a detailed account of them. I will, however, incorporate here extracts taken from an editorial article in the *Sanitary Record* for June 6th, 1879, relating to several epidemics of erysipelas, because it details facts and circumstances in a style so clear and terse, and expresses views so just, that I believe it will be acceptable to the reader. It says: "There is now no more doubt that erysipelas is originated by sewer gas than that typhoid fever is due more often than not to impure water. For instance, at the Old Infirmary, Lincoln, some years ago, twelve or fifteen cases existed at a time. Then the hospital drains commuincated with

the town sewers, and as neither was ventilated or disconnected, the hospital had the benefit of the full pressure of the sewer gas of Lincoln, because the hospital lavatories and closets occupied the highest points to which any of the sewer connections extended. At Manchester, too, sewer gas had demoralized the health of the staff, and had so increased the amount of erysipelas and pyœmia that the surgeons were afraid to perform even the smallest operation. Recently the authorities of a large London hospital proceeded to ventilate the whole of the drains and sewers in connection with their institution. Up to the time those alterations were made, pyœmia and erysipelas had almost driven the medical staff to despair. When the whole of the ventilation was completed, and as soon as the pressure was removed from the traps of the closets and lavatories, no fresh cases were found to occur. For months the hospital wards were free from erysipelas and pyœmia. Suddenly, however, there was a fresh outbreak of these diseases, but it was noticed that the epidemic was confined to one of the surgical wards, built apart from the main building, on the pavilion plan, and having only one story. Close investigation proved that the ventilation pipe in this wing had been stopped by a careless workman. When this was removed, all trace of the epidemic disappeared, and for four years this hospital has been almost free from those diseases.

"I have been led to make the above remarks because, during the last week, an investigation of great interest has been conducted by the Somersetshire Coroner into the causes of a fatal outbreak of erysipelas at the County Lunatic Asylum. It appears that from December, 1878, to May, 1879, five months, thirty-two cases of erysipelas occurred, of which four proved fatal. By making a searching investigation it was discovered that none of the soil-pipes were ventilated, that most of them were of lead, and that several were rat-eaten and riddled with holes. The soil-pipe leading from the infirmary closet was found to have a large hole in it, and that it had a direct communication with the main sewer, which was often choked. In brief, almost every sanitary evil was found to be present in this ill-fated institution; fermenting sewage was a constant factor, and sewer-gas, conveyed from the sewers to the wards by the rat-eaten soil-pipes, had committed its fatal ravages unchecked and unsuspected for at any rate months, perhaps years.

"The verdict of the jury in the case of the deaths from erysipelas at the County Asylum declares that the deaths were due to erysip-

elas, caused by the escape of sewer-gas into the asylum, owing to insecure and insanitary drainage arrangements. These instances seem to prove incontestably the truth of the declaration made at the outset of this article."

Air in large cities and manufacturing towns or districts is also often so polluted by coal smoke and noxious vapors from a great variety of works, as to become a prolific cause of disease, as well as of extreme annoyance, as has been fully shown by the evidence taken before the Royal Commission on Noxious Vapors, but there is no room here for detailed statement on the subject.

The *Russian Medical Gazette*, dated early in 1879, states that from the 10th to the 28th of December, 1878, fifty children died of diphtheria in one village. In January, 1879, two hundred died in another, in addition to the adults; and in the environs of the same, a little hamlet, about the same time, lost more than a hundred of its inhabitants. It committed much havoc in other villages. In another district from seven to nine died daily. In still another district it has raged since 1875, three years, during which time it has gone from one village to another, and increased in intensity from year to year. From its appearance in 1875 till December, 1878, the number of persons in that district who were attacked with it amounted to fourteen thousand, five hundred and ninety-eight, of whom six thousand, two hundred and twenty-four died, being over forty-two (42) per cent of mortality of all those stricken. In respect to the entire population of the district, that gives twelve per cent stricken by the disease, and five and one half per cent who have died of it.

"These figures are sufficiently striking," says the writer, "to allow of an epidemical character being attributed to the malady, which probably had its source in the unfavorable hygienic condition of the populations." A Rural Council finally recognized the necessity of introducing proper sanitary measures, and in March of this year, (1880,) it was stated in a St. Petersburg paper that nineteen sanitary detachments of physicians and nurses had been set to work in a single Province to combat the ravages of diphtheria. It is to be hoped that that phlegmatic people have at last been sufficiently aroused and interested on the subject in question to insure the adoption and efficient execution of such systems of sanitation as have been effective elsewhere.

And as to yellow fever, whether arising spontaneously in our gulf coast cities, or from the importation of the specific germ from other

places, as Havana, where it is endemic, there is no question but that it prevails far more extensively, and with much greater virulence and mortality, where filth abounds, and the soil, water, and air are all highly contaminated, than where such conditions do not exist, thus showing that the pollution of the elements named plays an important part in the spread and fatality of this disease, even if it be not the original cause of it.

The State Board of Health of Louisana, in their Report for 1879, accept the theory that yellow fever is a zymotic disease, contagious in its nature by the multiplication of its germs; and in reviewing the history of nine epidemics in New Orleans, and twenty-two in the towns of Florida, they claim that their origins were due, directly or remotely, to foreign importations of the germ, and they have earnestly endeavored, therefore, to prevent its introduction into their metropolis by the most rigid system of quarantine and the free use of disinfectants, which they assert have been successful on some occasions. How the fever originated in 1879 is a question involving much diversity of opinion. There is little doubt, they say, concerning the origin of the fever in Memphis at the same time, which was undoubtedly due to the revivification of the germs of the disease, in consequence of co-existing and exciting causes of a local nature; and they hold that, dispensing with the cases traceable to a particular external source, the remaining ones were the result of the germs of infection lying dormant since the epidemic of 1878. But they do not hesitate, at the same time, to express the belief that to the foul privies, and consequently contaminated soil, water, and air, they must look to discover the pabulum which feeds the cause of the pestilence. And to the extremely filthy condition of Memphis, and the polluted state of its water and air, was attributed the persistent prevalence and fearful fatality of yellow fever during the recent epidemics of that disease in that ill-fated city.

And now, having shown by indubitable evidence, as I think, that impure water and air are fruitful causes of disease and mortality, we must next consider the extent of the existing evils; the means resorted to for their removal or prevention, and with what success they have been attended; and what general course should be pursued, under all the circumstances, to reform the vicious habits of the people that have led to such evils; to correct erroneous or defective sanitary systems, and to insure by degrees better protection to the public health. These are questions of the highest moment, that have engaged for

years the profound attention and earnest thought of many of the ablest and most scientific men of the day, and it may be held by some that none other should presume to deal with or discuss them; but I claim that the humblest of us may, nevertheless, venture to review the entire field, to present striking facts, from whatever source obtained, and to offer suggestions, in a modest spirit, as to the general line of conduct best calculated to solve the great problem of disposing of waste or excremental matter, animal or vegetable, usually designated filth or sewage, in such manner as at least to greatly lessen the mortality occasioned by it.

It may be as well to inquire first into the sanitary condition of England—of London, particularly—where, for many years, such great efforts have been made, and vast sums of money have been expended, to improve that condition.

The partial failure of the great sanitary work of disposing of the sewage of the metropolis has been the subject of general regret and disappointment, for the outcome of the system undertaken by the Metropolitan Board of Works at enormous cost was not such as was contemplated.

A report presented to the Conservators of the River Thames upon the discharge of the metropolitan sewage, containing all the excremental matter of the city, at certain outfalls about fifteen miles below it, shows that these works have not accomplished the chief purpose for which they were projected, namely: to get rid of the filth and pollution of the metropolis. It was assumed that the sewage from the outfalls would, if discharged at ebb tide, when the set of the river was seaward, be taken out to sea and be heard of no more. It now appears that the flood stream being superior, as regards its erosive power, to the ebb, the sewage pollution which is held in suspension is driven up the river, far beyond the outfalls, and is deposited in the form of offensive and unhealthy banks of foul mud. This explains how the sewage mud banks and other dangerous deposits in the upper reaches of the river are formed. A civil engineer, a great authority on hydraulic engineering, predicted that discharging the sewage into the Thames by these outfalls would cause a dangerous pollution of the river and injury to its navigable channel. His prediction has been verified. The injury to the navigable channel of the river by the formation of the mud banks must be a serious inconvenience, but when they are regarded as masses of putrifying sewage matter, the sanitary aspect of the case requires grave consideration.

Besides the danger to health from the exhalations arising from the sewage accretions deposited on the banks of the river and exposed at low tide, there is the mass of polluted water eight miles long traveling up and down the river. It has been erroneously thought that sewage becomes oxidized by admixture with running water in a river, but the purification by this means has been found to be but slight.

The insanitary results which have unmistakeably followed the discharge of the metropolitan sewage into the Thames serves, indeed, as a warning to those who are following in the same wrong direction, besides proving a serious damage to all immediately affected by it. Many watering places have availed themselves of their proximity to the sea to cast their sewage into it, in the vain hope of thereby getting rid of it. No greater mistake could have been made, as the experience of many fashionable watering places proves. Owing to the sewage having a higher temperature and a lower specific gravity than sea water, it floats, and does not mix and become diluted, as is ignorantly imagined. The sea water acts chemically on the sewage, and sulphuretted hydrogen is liberated, producing its well known offensive smell. The decomposing mass is tossed about by every tide, and returns its pollution, either in the form of offensive gases wafted from the sea, or deposits the solid parts along the coast, to evolve, in its own good time, smells which drive away any seekers after either health or pleasure. Visitors have the evidence of their olfactory nerves in confirmation of this, and places where these evils are known to exist will acquire bad reputation and be avoided. Owing to the superior lightness of the sewage matter, it is of no use to run it into deep water, as it rises to the surface, to be as much a nuisance as if it were discharged into shallow water. The evil effects of so disposing of it have been most grievously experienced at six or eight watering places that might be named, where its invasion of the bathing places or machines, and the offensive odors arising from the chemical changes its presence produced, caused intolerable annoyance and disgust. More need not be said.

The water supply of London is abundant, but its average quality is by no means good, according to the weight of the best authority. The supply is furnished by seven companies, having an aggregate capital of £13,000,000. It is only the water delivered by two companies (deriving their supply from deep chalk springs) that is pure, except as to hardness, the percentage of the population furnished by them being only about seven. The water delivered by the five com-

panies deriving their supplies from the Rivers Thames and Lea, although efficiently filtered or otherwise treated before delivery, is very much polluted, and is considered by the majority of analysts as unfit for dietetic use.

Frankland concludes, after making careful analyses, at different times, of various samples of the water, although it had been efficiently filtered, that it was still, in each case, "quite unfit for dietetic purposes."

Angell, Burdett, Wigner, Calver, Mackadam, and Jevons, after each of them had made repeated analyses, agree in a great measure with Frankland, while Robinson and Tidy, after similar examinations, maintain that the water as delivered by the companies, having been purified by the processes in use for that purpose, is, as a general thing, sufficiently wholesome, and should be satisfactory.

The decided majority, however, condemn the quality, and urge that radical steps should be taken to secure purer water, not only to the City of London, but to all other places, the rural districts not excepted, where the present supply is not satisfactory in character. They stoutly insist that the rivers, at the sources of supply, are much polluted by sewage, which is often in a state of putrescence; that the processes for purification rid the water of only one third of its organic impurities; that it is often offensive to smell and taste and disgusting to sight; that the sewage deposit is many feet in depth and is continually fouling the water and emitting offensive and poisonous exhalations while being agitated by the tides or by navigation, and that it is out of the question to discharge sewage into any river, at any point, unless it had previously undergone purification, which is difficult of attainment and often incomplete.

Dr. Mackadam, in a paper on "The Contamination of Potable Water in Domestic Cisterns," expresses the decided opinion that not only is the water in cisterns rendered more or less impure from imbibing noxious gases led by waste-pipes, etc., from drains, sewers, traps, and cesspools, but also from contact with the sediment or deposit lying in the cisterns themselves, and that in many cases the evil effects of impure water supply are directly traceable to the contamination of the water by its being retained in domestic cisterns containing impure deposits which may have been lying there for lengthened periods. Hence the importance of cleansing out these receptacles often and thoroughly. After stating the results of a number of experimental analyses, Dr. Mackadam continues thus: "These results

prove that the water suffers severely in quality from being retained in vessels containing cistern deposits, there being a decided increase in the organic matter in solution and in the saline and albuminoid ammonia, whilst there is a marked decrease in the proportion of oxygen gas dissolved in the water. The foregoing results demonstrate that the water supply of a town or populous place, which may be everything that is desired at the fountain head, and even at the supply pipe as delivered to the householders, is liable to very serious contamination when retained in house cisterns containing deposits or sediments which are composed in part of finely-divided lead compound and decaying or putrescent organic matter; and I am confident that in many cases the water supply of both towns and mansion houses is rendered unwholesome from being retained in dirty cisterns. The remedy for the evil, as already stated, lies in the periodic cleansing of these house cisterns. A wire or perforated zinc cover might be placed over the cistern to keep out mice or any foreign body, but a tight cover, which hinders the aeration of the water, should not be used."

The results of inquiries in connection with a paper read, and a discussion had upon it, at the rooms of the Social Science Association, in regard to the question of water supply, were the recommendations that recourse should be had to the sources of river supplies—namely, the shallow springs at their heads rather than the streams themselves, and to soft water rather than hard, as well as to constant distribution and street hydrants instead of the intermittent plan. Those principles have been applied in many provincial towns with undeniable advantage, the supplies of soft spring water being, in some instances, double the consumption. Unity of management, too, ought, in the opinion of the Association, to result in a saving of water, and it was claimed that a sufficiency of surface spring supply for all purposes could be placed beyond doubt. It was claimed, further, that the conditions of a good supply were a pure source, constant service, high pressure, and public control; and none of these conditions existed in the metropolis. The allegation that oxidation, subsidence, and filtration rendered sewage-contaminated water fit to drink, was a theoretical conceit, repugnant to sense and natural instinct in times of general health, and when cholera and typhus or typhoid fever prevailed, attended with special danger. The present intermittent system, it was held, made a "good supply bad, and a bad supply worse," for butts and cisterns were snares for pollution.

The scheme of the Metropolitan Board of Works was to draw pure water from the chalk basin for domestic use, and to retain the present source of supply for all other purposes. In the discussion, public purchase and management of the water works were approved, but the dual scheme met with no support.

Various processes have been invented and put in operation, as already mentioned, to purify polluted water, or to cleanse sewage before it be allowed to be discharged into rivers, a number of which are held to be very effective, some persons maintaining that the effect is so thorough that the foulest water containing sewage may be so divested of its impurities as to render it quite palatable and safe for domestic use, while others as strongly maintain that no process whatever is capable of rendering such water wholesome and fit for such use. That some of such processes are of considerable benefit, and that they are put in use with fair success on the water supplied to the London consumers, seems to be reasonably well attested; and that the water supply of that great city, while far less pure than potable water should be, is yet probably not much behind the average purity of that which is furnished to large cities generally, is a conclusion that at least respectable evidence appears to warrant us in assuming. The weight of authority seems, after all, however, to be against the fitness of such supply in the main; and, in his report to the Local Government Board, Professor Frankland says that his analysis of the water supplied by the Metropolitan Water Company, made in October, 1879, shows that the waters of the Thames and the Lea were much more polluted during the year with organic matter than they were in 1877. More than one half of these waters were often much polluted with organic matter of animal origin; about 80 per cent of the balance was occasionally, but less intensely, so polluted, and only 6½ per cent of the whole were uniformly delivered in a pure and wholesome condition.

The City of Paris is supplied with much purer water. It is supplied from four different sources, each source furnishing about one fourth the entire supply. One fourth is taken from the River Marne, fifteen miles above the city and five miles above its confluence with the Seine; one fourth is furnished by a spring or springs thirty miles off, and is conveyed in pipes; one fourth by artesian wells, over two feet in diameter; and the other fourth from the River Seine, pumped up from it at a point seventy-five miles below the city, by the course of the stream, but only fifteen miles off in a straight direction, and is

thence conveyed to the city through a pipe of proper capacity. As the excremental matter is not discharged into the Seine, but only the storm or surface water, the slop water from the houses and the urine from the urinals, the river water is far less polluted than is that of the Thames, which receives all the sewage of London, the excremental matter included, while the storm or surface water is excluded from it.

As to the relative purity of the water supply of Paris, derived from different sources, that from the springs stands first; from the artesian wells, second; from the Marne, third; and that from the Seine, fourth and last, although this, the most inferior of any in quality, is not very impure.

In regard to the quality of water supplied to the large cities of this country, I have not been able to obtain as definite information as I would like.

The source of the water supply of the great City of New York is comparatively good or pure, but how much it may become deteriorated or polluted before it is delivered to consumers I am not prepared to say.

The City of Philadelphia obtains its supply of water from the Schuylkill River by pumping into a large reservoir, where it is constantly stored, for distribution as needed. The river must necessarily be polluted, more or less, above the point of supply, as towns, tanneries, etc., are situated on its banks, as is the case with most rivers, and then the long standing of the water in the reservoir, where there is much impure sediment in the bottom of it, must lead to its contamination in some degree from putrefactive fermentation. And I am aware that the quality of the water has been impeached, while I am not prepared to say to what extent or with what justice.

The water supply of Boston is derived from four sources—a lake, two ponds, and a river—all more or less exposed to pollution, the lake least of any. The country around about or on the line of these sources of supply is thickly populated, being the site of many villages and manufacturing works, and constitutes the water sheds that empty their storm waters, with the washings of the general surface, into them. This being the case, it seems reasonable to conclude that the quality of the water cannot be good. It is, indeed, admitted and regretted by the State Board of Health of Massachusetts that its quality is objectionable.

Chicago is supplied with water taken from Lake Michigan, through eight miles of lake and land tunnels, run sixty feet below the bottom

of the lake and surface of the city's site, the last mentioned or land portion being three times as long as the first, and four hundred and thirty miles of main water pipes, all supplied through the lake tunnels, which obtain their supplies, in turn, through shafts situated inside of and protected by a crib two miles out from shore. The cost of these water works, which belong to the city, up to December 31st, 1877, was $8,344,305 08, according to the Mayor's report.

All the sewers of the city, containing every species of sewage, are discharged into the Chicago River and its north and south branches. These streams flow through the heart of the city, and, with their waters laden with its entire vast amount of sewage, are discharged immediately opposite its central part into the lake, through the main river. The large deposit of the solid matter from the sewage discharged into the river and its branches so fills up their channels as to interfere materially with their navigation, and necessitates the annual or repeated dredging of their bottoms at a very heavy expense.

The crib is located in the lake about two miles from the mouth of the river, in a northeastern direction. There are two sets of pumping works, for pumping the water to the proper elevation for distribution by gravitation—one near the lake shore north of the mouth of the river, and the other in a southwestern direction from it, at a distance of three or four miles. The cost of pumping at the two pumping works amounted, in the aggregate, to $116,043 for the year 1878.

When heavy rains occur, with strong southerly winds, the sewage discharged through the mouth of the river is driven up to the crib, and serves to pollute the water supply of the city. So says the City Engineer. And the analytical chemist employed by the city reports that he discovers impurities in the water taken from the hydrants. He says, further, that careful observation by different microscopists does not leave a reasonable doubt that nearly all of the impurities, properly so called, found in the water as drawn from the hydrants, comes directly or indirectly from the sewage in the river water that is discharged into the lake. Of animal life there is an interesting variety. Occasionally is found some of a very objectionable character that have evidently been carried out to the lake crib by the lake or river currents from the breakwater or shore, where, at certain seasons, they are to be found in great numbers, especially near the river or outlet. Storms scatter these organisms in the waters of the lake for some considerable distance from the shore, and when once taken into the tunnels and mains they continue to multiply, and a few

of them can be found in the water supply at almost all seasons of the year. Evidence in corroboration of statements like this is so abundant and easily obtained that it cannot be successfully refuted, and the only conclusion that can be arrived at is, that the purity of the hydrant water can only be maintained by preventing the discharge of all impurities into the lake, or by extending the tunnels a sufficient distance from the shore to be beyond their influence.

The report of the State Board of Health of Michigan for 1878 on the subject of Water Supply, informs us that Detroit obtains its water supply from the Detroit River, which is polluted by the sewage of numerous towns situated above on its banks; and Detroit, in turn, pours its sewage into the same river, to poison the people residing on either side of it, lower down. And Lansing obtains its supply of water from Grand River, which receives the sewage of Jackson and other places situated higher up its course, among others being the State Prison, where the night buckets of all the prisoners are emptied into a sewer which at once discharges the excreta of nearly one thousand men into the same stream.

Other proofs that a systematic pollution of the rivers of the State might be brought forward, and the evil must augment with an increase of population, unless it be prevented by timely precaution. To resist the beginning of evil is the demand of sanitary science on this subject.

The water supply of San Francisco is obtained from a set of springs, three several small lakes, and a creek, all situated within a distance of about twenty miles, and is conveyed through iron pipes and wooden flumes, a tunnel of a mile and a half in length having been found to be necessary, and which was constructed on the route.

The Spring Valley Water Company, owning the works, claim that the water is of good quality, and that the supply is not only ample to-day, but is sufficient for a much larger population. They claim, further, that the supply from the present sources could be very much enlarged with but little comparative cost, and that the water from a new district, if added to that of these, would swell the aggregate capacity to from six to ten times the present demand. They further state that when practicable or contemplated plans of alteration or improvement shall have been carried out, or their secured resources of supply shall have been utilized, two present resources requiring pumping to lift their waters to the necessary elevation may be dispensed with, and the entire supply be thereafter conveyed by gravitation to the distributing reservoirs located on elevated points within the city limits.

Although a few artesian wells have been sunk in San Francisco, and are furnishing water of a satisfactory character, the proposition to supply the city solely from such sources is regarded as impracticable, since the supply would be unreliable, and probably inadequate, judging from the experience of some other communities in respect to such supply. This we would at least be justified in apprehending. Besides, the quality of the water thus obtained would be uncertain, and might be impure, as has been found to be the case in some other localities.

The quality of the present supply has not been much complained of, and is probably of fair character, but it has been shown that some of the sources of it have been polluted, and that they are constantly exposed to pollution, as must necessarily be the case, more and more, where the water sheds about them are inhabited, and must become more densely populated from year to year. And if the water contained any organic matter it would necessarily deteriorate when stored in the reservoirs, from the increasing pollution that would be caused by the putrefactive changes that would occur in the deposited sediment in those receptacles.

The project devised and submitted about ten years ago, by Colonel W. A. Von Schmidt, to supply San Francisco and other places with water from Lake Tahoe, struck me most favorably at the time, and all investigation made by me since, and further consideration I have given to the subject, have but confirmed my first impressions. It is a grand conception and an enlightened and wise scheme, not a visionary and impracticable absurdity; for science now a days achieves what would formerly have been regarded as miracles, and we should have implicit faith, not blind but intelligent, in almost anything that may be promised for it by those who have mastered its principles in all their intricacies and subtleties, and who have shown by their works that they may be relied on to carry out to success their greatest proposed undertakings, however bold or gigantic they may be.

I have carefully examined in detail the plans of this project, and believe it to be entirely feasible; that, if adopted, it would prove to be a good investment for the city, and that, if executed, it would be of incalculable benefit to all who would be brought within the range of its influence, or who might be privileged to partake of the pure waters it would dispense, instead of the distasteful and perhaps poisonous supplies that some are now compelled to consume to satisfy the imperative needs of the system.

For a pure and wholesome water supply it is indispensably necessary to obtain it from a pure source, and to so manage it as to preserve its purity, by preventing any possibility of its contamination while in transit, or when stored in reservoirs. The chief objection I would suggest, therefore, to the details of the plan is to the conveying of the water so far—nearly one half the entire distance from the lake to San Francisco—in an open channel of river and canal, instead of in a wrought iron pipe for the whole distance, as is proposed for the last half of it only. The water would be exposed to pollution while passing through the open ways; and, thus exposed, could not possibly escape it. I would, therefore, deem it far better, even at considerable additional cost, to use the iron pipe of the larger size proposed through the entire route. The general rule throughout the world, with occasional exceptions, is to expose the water supply of cities and towns to pollution, or even to pollute it directly and willfully, and I would be glad to see California, as generally as possible, stand as an exception as regards that abominable and suicidal habit, sometimes arising from discreditable parsimony, but oftener from want of knowledge, and consequently the lack of a just appreciation of the dangers on the one hand and the benefits on the other, accordingly as to whether sanitary laws shall be disregarded or properly observed in reference to this important matter. The polluting material of an organic nature often enters into a species of fermentation, or the specific disease germs engage in the work of propagation, that leads, in either case, to such rapid and boundless multiplication as, from a very small beginning, to result in the contamination, more or less, of the entire mass, even when very large. Abundant evidence of this fact is afforded even in the cases cited in this paper, and I would hope that we would profit by the fearful warning the examples alluded to give us. But man seems to be strangely constituted in some respects, and to be inexplicably blind or indifferent to what vitally concerns his health. We might go further and say, he is marvelously stupid, and insensible to the disgusting, for we find him all over the world polluting his water supply with his own excreta, and then gulping it down in large potations, or using it in cooking his food, or for other domestic purposes. We see this noticeably exemplified in the great City of London, at Boston, and in many other—indeed, in nearly all other—places, but more strikingly in Chicago than in any large city with the course of which, in this particular, I am acquainted. There, at an expense of millions of dollars, they have constructed a splendid

and complete system of sewerage, which receives the entire sewage of the city, and all this is discharged through the Chicago River into Lake Michigan. Then, at an expense of about $10,000,000, they have constructed complete and efficient water works, to pump from the same lake the water supply for distribution to the whole city, for all purposes. This water, thus returned to the city, is found by different analytical chemists, in various analyses of samples of water taken from the hydrants, to be considerably polluted by organic matter of a poisonous nature, and which was evidently derived from their own sewage. No other result should have been expected, and it seems strange indeed that so intelligent and enterprising a people should have been guilty of so gross a blunder. But this is only a typical instance of what is constantly being enacted almost everywhere, to a greater or lesser degree.

The water supply everywhere, where it is practicable, should be obtained from pure sources, high up in the hills or mountains, or from inaccessible or sterile regions unfit for habitation, so as to provide against the possible contamination of the water, and then, for the same reason, it should be conveyed in iron pipes from its source to the point of delivery. This idea is beginning to find recognition, noticeably in England, where the question of a better water supply has agitated the public mind for years, and where they are looking to the surface springs in the hills for a purer supply of the needed liquid than they have thus far had, notwithstanding all their efforts at the purification of water, once polluted, by filtration, subsidence, precipitation, or irrigation.

California is singularly favored in having so many lakes of pure soft water upon her mountain ranges, and all these should be utilized by having their waters conveyed, in the manner here advocated, to the cities, towns, and plains below, where it is at all practicable so to do, and then her example should be urged upon all other States and countries, to be adopted by them as far as practicable.

Sacramento obtains its water by pumping it directly from the Sacramento River, opposite the Water Works, which are situated near the upper end of the city, and that supply is polluted by the sewage of the towns and other settlements upon the banks of the stream higher up or near its tributaries that empty into it above the point of supply, including the American River, upon the south bank of which, twenty-five miles above, is situated the Town of Folsom and the Branch Prison. The consequence is that the water supply of the

city is more or less polluted, the amount of pollution varying considerably at different times, as is made manifest by its sensible properties to those who drink it. And this pollution must increase, as it does everywhere else, as the country becomes more thickly settled, and the opportunities or occasions for pollution multiply.

The water supply of Oakland is unusually good, being from artificial lakes whose waters are gathered from among the hills where at present no source of pollution exists.

But, as a general rule, our smaller towns and villages are supplied with water from shallow wells that are polluted to some extent by surface water and by leakages from neighboring cesspools. This is a lamentable condition of things, and the vicious system of digging wells and cesspools in close proximity, as is very often done, to lead to or allow the interchange of their contents, should be inveighed against unceasingly and loudly until the public stolidness or apathy on the subject shall have been replaced by a more intelligent appreciation by them of the facts, and of their duty in the premises.

At this point I will again allude to San Francisco, that I may say something in reference to two matters that concern her, and which have not yet been fully disposed of, as I understand, by the people or authorities of that city. One relates to sewerage and the other to the use of sea water for certain purposes.

The system of sewerage projected for that city several years ago, but never completed, seems to me to have been well designed except in one important particular—that is, the discharge of the sewage into the bay. Three years ago, in a report to the State Medical Society, I held that that arrangement was a good one, if the discharge pipes were extended sufficiently far out to prevent the return of the sewage to the shore to create a nuisance, not then understanding how difficult or impracticable it would be to carry out successfully such an undertaking; but investigations since made, and knowledge since acquired in reference to the experiences of various communities in their efforts to make like disposition of the same troublesome matter, convince me that the opinion alluded to was erroneous, and now I am satisfied that no such disposition of it should be attempted in front of a city or town, for reasons that have been fully stated elsewhere in this paper.

The other question or matter is as to the policy of employing sea water for the extinguishment of fires, for sprinkling streets, or for flushing sewers. Experiments made elsewhere on these points prove satisfac-

torily to my mind that it is unfit for such uses, for the reason that, besides necessitating the establishment of two systems of mains or pipes, which would be inconvenient and costly, it would discolor and damage houses upon which it might be thrown, whether of brick or of wood, particularly the painting upon them; that it would corrode metals with which it might be brought in contact, whether it were in the outside walls of buildings or on the streets, including the rails of railroads and the tires on the wheels of vehicles, and even the pipes that would convey it. It has been suggested, further, that in flushing it would damage the sewers that might be composed of metal, and cause deposits in all of them to such extent as to so clog them as to interfere materially with their discharging capacity. These several objections would be sustained by the experience of other communities, according to the testimony of careful observers.

Having shown the pernicious effects of impure water and air; the insanitary condition of various places as regards the quality of these elements, owing to want of sufficient drainage, the faultiness of sewerage systems, and the consequent improper disposal of sewage; the impurity of water supply on account of the fouling of streams, wells, and other sources of supply, and the failure from want of correct views, or lack of interest or enterprise, to utilize other and better sources; and the want of good or proper ventilation, in consequence of which the air consumed in respiration becomes tainted and unfit for such use—besides having incidentally made apparent many other violations of true sanitary laws—it remains now to point out or indicate the best general course to be pursued to remove the numerous evils existing, and to guard as well as practicable against their repeated recurrence or continuous existence, as well as to prevent their augmentation or the occurrence of new and still graver visitations or afflictions. And as sewage causes more mischief than does any other agent, by the pollution of soil, water, and air, it is well to consider first its disposal.

The pneumatic system of sewerage has attracted considerable attention for the last several years, and it is to be hoped that continued attention and experiment in connection with it may lead to its perfection to such a degree as to virtually solve the difficult and perplexing problem now at issue—the satisfactory disposal of sewage. Captain Liernur seems to have been the first inventor of a system of sewerage on the pneumatic principle, and an account of his plan was first published here in the biennial report of the State Board of Health

for 1874–5, as taken from the *Sanitary Record*, London, of November 21st, 1874. It is based on scientific principles, and is proposed as a substitute for the water carriage plan, which acts by gravitation. The article alluded to was prepared by Adam Scott, C. E., Liernur's chief representative, and in it he presented the new system in a very captivating light. The conception, indeed, seems to be a very happy one, and if it could be carried out successfully in all its details, and could be made a success financially, it would, in reality, virtually solve in a satisfactory manner the difficult problem under consideration, for it proposes to utilize the material to be disposed of by converting it promptly and speedily, before it can enter into putrefactive fermentation, or pollute the soil, or air, or the waters of wells or streams, into a valuable fertilizer that would bear transportation, as does guano, to any distant point where there might be a demand for it. But in operation this system has not proved as successful as it was promised in advance that it would. The matters dealt with were really found to be too solid and tenacious for the mechanical processes to which they were subjected, so that they clogged up the pipes, and compelled at times the stoppage of the works. Besides, the cost of constructing and operating them was too great for the uncertain income, and hence a pecuniary loss was entailed upon the enterprise. The system is, however, beautiful in principle, and should, and doubtless will, be so improved as to render it practical and most useful in the end. It strikes me that a limited but sufficient quantity of water should be added to the too solid matter, so as to allow of its easy conveyance through the pipes and to prevent it from adhering to and clogging them. Scientific experiment and unflagging perseverance in efforts to improve and perfect, in its practical details, this grand design, should, and I believe will, eventually result in substantial success. The true policy, to my mind, in dealing with sewage, or at least with the excremental and kitchen slops portion of it, is, as may be inferred from what I have said, to utilize it by converting it, with the aid of science, into a valuable manure, as is proposed in the system just alluded to, instead of passing it through sewers into rivers to pollute their waters, and in its course to contaminate the air also; or of discharging it into seas or bays, for reasons that have been given; or, yet, of employing it in sewage irrigation, although it is generally admitted that sewage farms are not unhealthy, nor their products unwholesome.

Acting probably upon the ideas made prominent in the published

account of the system just alluded to, Mr. Isaac Shone, of Wrexham, England, has invented or proposed a system, which is designated "Shone's Pneumatic System of Sewerage." This system is attracting a good deal of attention and is eliciting considerable discussion among engineers and other scientific men.

This system does not claim to deal with the sewage at the outfall further than to aid, by means of pneumatic power, in its distribution upon the land or into the sea, or into tidal rivers at all and any state of the tides; neither does it interfere in any degree with the ordinary domestic sanitary arrangement, except that it urges, in unison with all advanced sanitary authorities, a disconnection, as complete as possible, of dwelling houses from the sewage gas inlets in the form of the soil and waste pipes and cellar drains. It recommends that a separate system of drains should be provided for the surface water, so as to reduce the steam power needed to work the ejectors; but even this restriction is not a *sine qua non* of its adoption.

In the plan of a town laid out under this system, the town was shown laid out into five groups or areas, each drained to its center with ordinary glazed earthenware gravitating pipes, laid to a minimum fall of 1 to 200. In each of these centers was placed a Shone's pneumatic liquid ejector, served with compressed air by means of small iron underground pipes communicating with an automatic air compressor and steam engine. The ejectors were shown placed in underground chambers, having access to the street by manholes. From each of two ejectors the main sealed sewers of cast iron ran up hill until a high ridge was crossed, after which they discharged into glazed earthenware gravitating pipes, with rapid gradients, and consequently reduced sectional area, by which the sewage was conveyed into the moss. The other three ejectors discharged their contents directly into the upper part of this pot sewer at such a level as given to gain additional "head" to the fluid.

The ejectors are described as vessels constructed of iron, into which the sewage from the houses flows via the gravitating sewers in each group. The process for raising liquid sewage by aid of a float, is explained in detail, but this I will omit. The cost of the system is estimated to be about one third the cost of the Liernur system, for somewhat similar work. The system is commended for its simplicity by those familiar with its action. Thus far this system is described only so far as it relates to the removal or transportation of sewage, but not as to the manner of treating it or converting it into a fertilizer, to which extent, inde[illegible] [illegible]vet been carried.

On July 19th, 1879, a large number of engineers, medical men, and other professional gentlemen, met in Wrexham, to consider this system. The following resolutions were offered and adopted, after full discussion: "First, that the working parts of Mr. Shone's pneumatic ejector and Mr. Sturgeon's air compressing machinery are so simple that the wear and tear and liability to get out of order are reduced to a minimum. Second, that the system is admirably adapted, in an economical and sanitary point of view, for the sewerage of low lying districts. Third, that the system is admirably adapted for the sewerage of the low level districts of towns situated on gradually sloping ground, from which the sewage can be conveyed partly by gravitation." It was particularly commended for its simplicity and efficiency, the consequence being that the sewage could be taken at little cost to any place needed, from low places and over hills, without tunnels or deep cuts, and they had no reservoir to fill. Another advantage was that whilst the sewage was progressing through the town they had no manholes through which to admit the escape of any gases, which resulted from decomposition; in fact, there was no decomposition, owing to the rapidity with which the sewage was driven, it being carried away before decomposition took place. Therefore it was held that in all towns this system should be introduced, if simply on the score of health. And instead of having sewage accumulate in low places, or thrown into the sea, it may be driven up into the surrounding country to irrigate it.

There is much in these two systems to encourage the hope that some happy plan may yet be devised to divest sewage of all its noxious qualities, and to convert it speedily into a valuable and harmless article of commerce. But rather than keep up the present system of water carriage through lengthy sewers, and the discharge of their contents into the rivers, bays, or seas, it would be far better to adopt the Paris plan of storing excremental matter in large water tight pits or cesspools, sunk in the center of a block, to receive from all sides the excreta from all the houses situated on such block, the removal of it being made at intervals by odorless excavators, and conveyed to the country to enrich the soil. And so this should be the general plan, in my judgment, in cities, towns, and villages, and even in the country, until some plan shall have been perfected to convert such matters in cities or large towns, at least, immediately into a harmless manure. But in this case the water

supply should be obtained from a pure and distant source, or from deep artesian wells, which could not be polluted by surface water or from percolation from soils largely impregnated with foul and poisonous matters. The laws should sternly prohibit the sinking of cesspools and wells on the same premises, or in any instance in such way as to allow the contents of the one to find their way into the other. Indeed, where cesspools are deemed to be necessary in a town no shallow well whatever should be allowed. But, in that case, either artesian wells, or cisterns constructed above ground, and well covered in and shaded, and supplied with rain water, should be looked to for a supply of water for general use. And in gathering rain water for storage, none should be allowed to enter the cistern in any rain until after the roofs of houses had been thoroughly cleansed by the rainfall, and the atmosphere had been purified by the same means. At intervals, under such an arrangement, the cesspools should be emptied by the odorless excavator, or by the operation of such a system as Shone proposes, and the matter thus removed should be transported to the agricultural lands for fertilizing purposes. This plan could be more easily carried out, in many cases, than the water carriage system proper connected with sewage irrigation, because it can be operated without regard to inequalities of surface. Both plans are objectionable and expensive, however, and efforts should never cease until a general system shall have been perfected for such immediate conversion of the sewage into a portable manure, as has been proposed.

But I would not by any means recommend the total abandonment of the water carriage system. It is an admirable contrivance for washing out hoppers, and for floating by gravitation the excremental matter to large central cesspools not very far distant, as in plans like that in use in Paris, or for conveying such matters through sewers to more distant points, where it may be utilized in sewage irrigation. Water is also necessary in the pneumatic systems, not for carriage by gravitation, but, as already suggested, to convert the solid matters into a semi-liquid state, so as to facilitate their transportation by suction power.

There are many other conditions or occasions where scientific principles and skillful mechanism may be advantageously appealed to for transforming otherwise waste and injurious matters into valuable products, or for applying them to useful purposes. As instances, the treatment of coal smoke and fumes from chemical and other works, and

the collection of the waste products of industry from print and other manufacturing establishments of every description, to be dealt with according to circumstances, may be mentioned. Here well devised and skillful treatment of these substances, whether coal smoke, acid fumes, or other refuse matter of manufacturing works, may result in many valuable products, to take the place of what, without such treatment, would be nuisances, not only offensive to the senses but deleterious to health also, through the medium of air or water.

It is estimated that one and one half per cent of the vast quantities of coal consumed escapes into the atmosphere as cinders, or as sulphurous or sulphuric acid vapors, resulting from the oxidation of the sulphur contained in the coal. To get rid of this pollution of the air, which, besides being very damaging to brick buildings particularly, is peculiarly irritating to the respiratory organs, many experiments have been made, and smoke washing and other contrivances have been invented. Most of them have proved to be failures, principally because they aimed to get rid of the blacks or soot more than of the invisible constituents of coal smoke, which are so deadly in their effects when concentrated, or because they were constructed of iron which was destroyed by the acids. Finally, a smoke and fume washer was constructed of wood, with a solution of milk of lime in the tank, that fully met expectations. When coal smoke was passed through this solution the whole of the acid vapors were absorbed, and a solid product, containing so much calcium sulphite as to form a valuable disinfectant compound, was left as a deposit in the tank. This compound, which also contains the blacks, when freed from the water, its value depending upon the sulphite of lime and a little carbolic acid, is worth in England £12 per ton.

The same general ideas may be expressed and are appropriate in reference to private slaughter-houses, or in regard to abattoirs. At these places every portion of the carcass of the animals slaughtered may be utilized and applied to some useful purpose, or converted into some valuable product, so that no waste or nuisance would occur from the business of those establishments, to operate as a loss, or to taint the air to the injury of those who might inhale it.

It has been abundantly shown that noxious gases, or air containing specific disease germs, are prolific causes of sickness and mortality, and all sanitarians admit the necessity to health of pure air; and when it is remembered that all other requisites of existence, such as pure food, pure water, etc., are only used at distant intervals, and that

we are always, whether awake or asleep, consuming air, the great importance of this vital requisite in a pure condition may be seen by all.

Besides preventing the commission of nuisances, and providing for the removal of filth and the disposal of sewage, to preserve as far as practicable the purity of the atmosphere about us, it is highly important—it is imperatively necessary, indeed—to carry out complete systems of ventilation, to prevent the ingress of poisonous gases into houses from sewers, cesspools, etc., and to provide effectively for the escape or conveyance of impure air from buildings of every description, however it may have been contaminated—whether from without, through soil or waste pipes, or from within, by the products of respiration or of combustion, by exhalations from the bodies of persons, or from their dejections when sick, or from any other sources of pollution.

Many systems of ventilation have been invented and put more or less in operation, with varying success or benefit, accounts of which have been published in journals and other works that deal mainly with sanitary questions; but from all I can learn they are more or less defective or inefficient, and need to be improved, or to be superseded by something better.

In my report to the State Medical Society three years ago, on the subject of "Public Hygiene and State Medicine," I introduced a then recent invention, made by and patented to Messrs. Eastmond & Cottier, residents of the Pacific Coast. I presented it as a new and novel invention, comparatively inexpensive in its application, simple in design and construction, not liable to get out of order or to require costly repairs, and based upon scientific principles according to the laws of pneumatics. I described its construction and operation, and earnestly urged its general adoption; but, as is often the case with regard to the most valuable discoveries and inventions, my recommendations have not been acted upon to any considerable extent.

This neglect has arisen in a great measure from the fact that the invention has not been so clearly formulated, or illustrated by such well devised or skillfully drawn diagrams, as to enable builders to fully comprehend it and to carry it out accurately in construction. The consequence is, that it has not been fully understood and appreciated by the public, and hence they have not been sufficiently alive to its merits, or eager to avail themselves of its benefits.

In the meantime, however, it has been put in operation in many

buildings, both public and private, in this State and in Oregon, its inventors and patentees not having attempted as yet to procure its adoption anywhere else. During the same time, too, they have obtained very many certificates from Boards of Health, medical societies, scientific men, Boards of Education, county and municipal authorities, and citizens of prominence and high character, all testifying strongly as to its efficiency, and the great satisfaction it has given wherever applied.

It was first applied to outside privies, then to inside water closets, and finally to parlors, sitting rooms, and sleeping apartments, the same principles being kept in view and being carried out alike, however, in every case, in its adaptation or construction in the several situations, and under the varying circumstances, of its application. The leading idea to be borne in mind, and to be rigidly carried out, is that no air shall be allowed to enter or reach the cesspool in the case of outside privies, or the hopper in the case of inside water closets, except through the openings in the seats, whereby a downward draught is created and maintained; nor must it be permitted to find its way into the air chambers or flues except by the same route, or else the draught up such flues would be inoperative to carry off the gases arising from the cesspool in the one case, or the sewer, through the soil pipes and hopper, in the other. So, in the case of parlors, sleeping apartments, halls, or any other house or place, besides water closets, air must not be allowed to enter the air chambers appropriated for the ventilation of such apartments, except through the openings made through the baseboard, or elsewhere, for the admission of foul air into such chambers, to be conveyed up to and discharged above the top of the roof. The impure air being conveyed thus from dwellings and other buildings by a gentle suction force leaves a partial vacuum, which is as gently filled by pure air, without creating any violent draught to cause discomfort or injury to health.

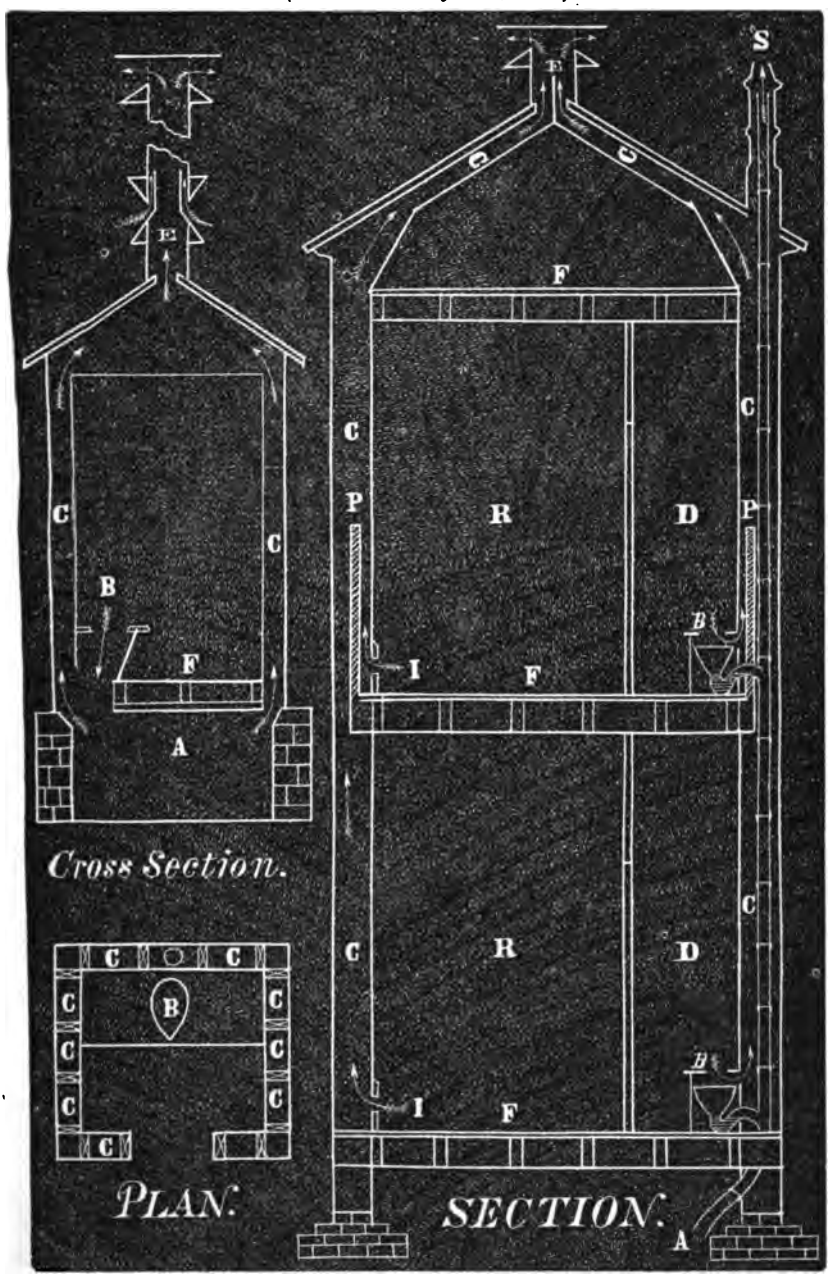
The striking advantage of this system over any other for the ventilation of either outside privies or inside water closets is, as intimated, that no air can enter the cesspool or hopper except through the opening in the seat; and consequently there is always a downward instead of an upward draught, thus preventing the possibility of the admission into the closet of any of the offensive and poisonous gases that are constantly arising from such receptacles of excremental matter, the sewer gases being included in such as may emanate from the hopper.

In constructing the outside privy its connection with the vault must be accurate and close, so as not to allow the passage of air between them; and the floor, inner and outer walls, and the ceiling, must be substantially air tight, so that no air can enter the vault, or the chambers between the walls, except through the openings in the seats, as before stated, and then all gases arising from the vault would pass up, by suction force, through such chambers, into the attic and out at the opening in the comb of the roof, made for its escape into the open air. If desired, a shaft could be extended up from this opening in the comb so as to conduct the foul gases and vapors any preferred distance above it before they are allowed to escape. The effect of this plan when in operation over cesspools is to maintain such a strong and constant evaporation as to so lower or lessen their contents, or even to desiccate them, as to render their removal but seldom necessary, or altogether unnecessary, unless it were desired to remove them, when comparatively dry, to be used for fertilizing purposes.

In applying the system to inside water closets the same principles are observed and acted upon, and the downward draught through the opening in the seat is obtained. This is done by making the floor underneath the seat air tight, and continuing it back to the outer lining, care being taken also to make the filling between this floor and the soil pipe so close as to be impervious to air, and leaving an open space between the top of the hopper and the under surface of the seat, through which the gases and vapors from the sewers are drawn by a similar suction power, through like air chambers between the outer and inner walls of the building up to a point above the ceiling, and then under the roof between it and the plastering or sealing in the attic, if there be any such plastering or sealing, and thence through an opening at the comb, as in the other case. But if the attic be not plastered or sealed, a sufficient space may be sealed or boxed up between some of the rafters on either side of it and the roof, to conduct the contents of the air chambers to the proper point on the comb for their discharge. Besides the various traps and other contrivances that have been invented and applied to prevent the escape of sewer gases into buildings through water closets, within the last few years the custom has prevailed to a considerable degree of extending the soil pipe directly up in a straight line through the entire elevation of the building, and out at the top of it, the name of stench pipe being applied to it above its connection with the trap. This contrivance certainly takes off a large portion of the sewer gases, and thus

Eastmond & Cottier's System of Ventilation for Dwellings, Halls, Water Closets, Etc.

(Patented January 11th, 1876.)



Explanation: A—Vault, cesspool, or sewer; B—Openings in seat; C—Air chambers, or flues; D—Inside water closets; E—Ventilating ejector; F—Floor; I—Opening in base board, near floor; P—Partition between studding, to prevent foul air entering into room from room underneath; S—Soil pipe extended above roof, (if desired).

lessens their pressure and consequent liability to escape into the building through the water closet. But it just as certainly, I think, does not take off the whole of them, for a portion of them still escapes through the trap and hopper. Nor does it relieve the closet from the gases and offensive odors that arise from the trap and hopper at the time it is in use, nor, as a general thing, at other times, owing to the accumulations of fœcal matter that adhere tenaciously to them in despite of the free use of water in flushing.

The patentees of the Eastmond & Cottier system claim that their plan, if properly constructed, is fully equal to the removal of all gases that may come up through the soil pipe, without its being extended under the name of stench pipe, up to and through the roof of the building, in the manner stated, and that consequently such extension pipe might be safely dispensed with as being unnecessary. They have applied their plan to quite a number of inside water closets where there was no such stench pipe, and with such success in its operation as to give perfect satisfaction to persons for whom it was applied, as has been certified to by them in strong terms, accompanied with expressions of commendation of the system. But where persons insist upon having, or perfer to have, the stench pipe, no objection is raised to it, and I have had a plate prepared, to accompany this paper, that will clearly show such pipe, as well as the air chambers, and their relative position to each other. But it seems quite reasonable to my mind that the stench pipe might far better be dispensed with than could the system here favored, with its large air chambers in which is maintained a draught strong enough to fully control the gases in question, while the pipe is comparatively small, is without a strong draught, even when of uniform diameter throughout, and is liable to overflow at the trap. On the other hand, the Eastmond & Cottier system could not properly be dispensed with, because it performs functions that no other system does—the relief of the closet, hopper, and trap at the time of use, and the safe removal, in the manner explained, of all gases from the sewer that may elude all other contrivances designed to exclude them from the house. Another advantage that may be claimed for the system under consideration, as regards water closets, and which is possessed by no other, is the negative protection it affords to delicate persons, sensitive to cold, by reason of the absence of an up-draught through the seat; and this would apply particularly to women at a certain period, when the arrest of a function belonging exclusively to their peculiar

economy might cause, as its arrest often does, serious, and possibly fatal, consequences. This suggestion is not original with me, but was made, as an original idea with each, by at least two experienced and eminent physicians who attached much importance to it. The suggestion is a sensible and practical one, and deserves to be respected and acted upon favorably as far as practicable. It is held that exposure to the usual up-draught alluded to often causes the injurious effects spoken of, and hence the importance of providing against so serious a contingency.

In applying the system to parlors, halls, or any other apartments, the spaces between the outer and inner walls are utilized as air chambers for conveying impure air from such rooms up to the top of the building for discharge into the open air. And here the same general plan is pursued to conduct the gases or impure air up through the air chambers, through the attic, and out at the comb, as described in reference to the management of gases from inside water closets. In that case it was enjoined that the flooring should be extended back under the seat to the outer lining, and made air-tight, not only in its joints but in its fittings about the soil pipe also, that no air should be allowed to enter the air chambers except through the opening in the seat and from the sewer through the soil pipe and hopper. And so, in ventilating dwellings, etc., the flooring must be extended back to the outer wall and made air-tight between such outer wall and the baseboard, not only in its joints but in its connection with the outer wall also, so that no air can enter the air chambers from below, but only from the room to be ventilated through the openings made in the baseboard, which are finished with ornamental gratings, designed to allow the impure air to enter such air chambers, to be carried out of the building, according to the plan explained. This process of continuous removal of such impure air operates to cause a partial vacuum in such room, to be as continously filled or supplied with fresh air from without. So, it may be perceived that the principle and *modus operandi* of this invention are the same in all cases, wherever applied, and that it is applicable to all buildings or places requiring ventilation, not excepting ships, steamers, and railroad cars. To the outlets through the comb or elsewhere on the roof a suction ventilator might often be applied with advantage, because of its tendency to increase the draught up the air chambers or flues.

The ventilation of sewers is also important, and is a subject that has of late years attracted much attention and led to the invention

of many plans to effect it, all of which have failed, more or less, to accomplish the end aimed at. One of these consists in the perforation of the covers of the manholes communicating with the sewers, whereby the gases may escape from them into the streets, and thus remove the great pressure caused by their being pent up in those channels and made more liable in consequence to find their way into houses through any connecting pipe. But this plan of perforation is objectionable, for the reason that a nuisance is thereby created by the discharge into the streets of offensive and poisonous gases that must necessarily be inhaled by all who may pass within their range.

Recently in Napa City such nuisance, created in the manner explained, became so great as to be intolerable, and to cause a strong clamor to arise for its abatement. The consequence was that the system under review was applied with perfectly satisfactory results. The perforations in the manhole covers were closed, a pipe of sufficient size was connected with the sewer near its head and thence conducted underground, under the sidewalk, and up through a neighboring house into an air chamber. Through this pipe the sewer-gases were conveyed into the air chamber mentioned, and from that through an opening in the highest point of the roof. At this point of opening and discharge through the roof a stationary suction ventilator, recently invented by Mr. Cottier, was also placed, and so affected the currents of air impinging or acting upon it as to increase considerably the strength of the upward draught through the pipe. The effect of the new arrangement was to remove the evil complained of, and to give entire satisfaction, as was certified to by the city authorities, and given publicity to by the local press. And the Trustees of Sacramento, after investigation and due consideration of the facts just stated, have made arrangements to have the sewers of their city ventilated according to the same plan.

This system was brought to my attention soon after its invention, in 1876, and as soon as I had examined it carefully and discovered and comprehended the principle upon which it acts, I became convinced of its novelty and merit; and as time, observation, and accumulated evidence have but confirmed me in earlier convictions, I am not prepared to retract anything said by me in its favor three years ago, but, on the other hand, I now feel it to be a duty to recommend it still more highly, and to urge more strongly than ever upon sanitarians and others its general adoption. I can do this the more unreservedly now because my conceptions as to the peculiar mode and

scope of its action are clearer than heretofore, and my convictions as to its worth and general adaptability to all places needing ventilation are at present stronger than ever.

In describing the mechanism and action of this system I have gone into tedious details, preferring to run the risk of being guilty of prolixity or tautology rather than to allow any obscurity to exist that might lead to misunderstanding and a consequent failure to construct the work, if attempted, in a manner to insure the efficiency of the invention.

I will also say at this point, that in the statement of facts or of settled opinions, as obtained from various authorities or writers, I have in some instances, to a limited extent, adopted the language of such authors or writers, when found to be concise and explicit, without giving any special credit, for the reason that such careful acknowledgment would increase the length of my paper, and that, besides, neither common usage nor any exacting rule exists to demand of me, under the circumstances, the opposite course to that pursued.

And now, although this paper has already been extended to an unreasonable extent, and far beyond my original purpose, I realize that it would seem quite incomplete unless I should say something in regard to the agencies or instrumentalities best calculated to remove the many and grave evils that have been shown to exist, and to give effect to the suggestions of reform or of remedy that have been made by able investigators and wise advisers in reference to sanitary maters that profoundly concern the public health, as well as the general well being of every community.

Government is understood to be instituted for the protection and welfare of man; and while it may protect him in his material interests—in the acquisition and enjoyment of property—the fact must not be overlooked that a higher function is to protect him in his "life, liberty, and the pursuit of happiness," and that to protect him in his life is not only to protect him from the hand of the assassin, but also against the dread pestilence, whether it come in the shape of a violent and fatal epidemic that may invade a country from abroad, or as the insidious domestic foe that may lurk in his food, in the water he may consume, or in the air he may breathe, for in all these the germs of disease may revel and multiply, and through such ingesta find a lodgment in the system of the unsuspecting victim. Isolated individuals or unorganized communities can do but little to protect themselves against such assailants, and it is only Government—National, State,

or municipal, the embodied representative of the people, invested with authority and power, and possessed of the requisite means to carry out or enforce its designs—that can, with the consent and co-operation of all, contend successfully against the gigantic and widely pervading insanitary evils that menace us, and finally solve, through the instrumentality and aid of science and its faithful votaries, many difficult hygienic problems that have hitherto baffled the efforts of the ablest and the best of those who have attempted their solution.

Governments and peoples have shown commendable zeal and liberality in the cause of public hygiene, and have expended vast sums of money in its interest, with the effect of reducing the rate of mortality, in many instances, from twenty-five to fifty per cent; but yet many of their efforts have been ill-directed, and their expenditures comparatively fruitless, for the reason that more accurate knowledge has been needed, and better, more complete, and more efficient systems have been wanting to accomplish the grand end aimed at. To insure better success, there must be more general enlightenment, freer conferences, and more harmonious and cordial co-operation on such subjects, tending to result in more perfect and efficient sanitary systems than have yet been devised. To this end there should be held, at proper intervals, International, National, and State Congresses of Hygiene, for general consultation and discussion, and for the improvement or perfection of sanitary laws and comprehensive arrangements and regulations for protection against the approaches or origin of disease, and to preserve, by every possible foresight and well-contrived schemes, the public health everywhere.

The cause here considered is a common one to the whole human race, and all should realize that fact, and act in cordial co-operation one with another to advance its claims and purposes. As important and indispensable agencies in this work there must be an ample supply of highly educated and practical scientific men, thoroughly versed in mathematics, natural philosophy, and chemistry, in all their branches or departments, and fully capable, in one position or another, to work out any mathematical problem, to conduct any survey, to perform any engineering duty, to effect any analysis, or to employ the microscope skillfully and reliably; for persons fully competent to perform well all such special duties as are here indicated, would be absolutely required in connection with any comprehensive and efficient hygienic system that would probably be agreed upon by

any such congresses or conferences as have been alluded to. And, in accordance with the dictates of a wise foresight, the brightest youths and the ablest young men, everywhere, should, in large numbers, be thoroughly taught in the sciences, to the end that such qualified persons, when needed, may be had at all times to fill the many offices that must be provided for in the complete system that should be perfected in all civilized countries for the attainment of the noble purpose of preserving human health, not only by so far teaching man its laws, and his duty to himself, as to enable him to protect himself against his own suicidal acts; but to provide, at public expense, sufficient numbers of competent and faithful officers to give requisite instruction in every locality where required, and to see well that no grave violation of sanitary law, or disregard of scientific principle relating to hygiene shall occur within the range of their respective jurisdictions or spheres of duty.

And to give vitality and the greatest possible effect to the laws, systems, and agencies that may be deemed best calculated to accomplish the grand hygienic aim in view, the Government, the State, or the governing power, as the servants of the people, and sustained by an enlightened public sentiment, must be broad and comprehensive in their views, bold and firm in purpose, and prompt and decisive in action, not stopping to count the necessary pecuniary cost, but being scrupulously honest and faithful in disbursement, down to the smallest item or detail. Besides a State Board of Health and the numerous municipal Boards of Health, which are advisory bodies, serving without compensation, true economy, and the best guaranty of efficiency and success in sanitary affairs will consist in provision being made for an ample supply, as before stated, to fill all requisite offices, of men of scientific attainments, experience, strict integrity, zeal, industry, and every other quality to fit them eminently for the duties to be performed, all to be so adequately paid out of the public treasury as to enable them to devote their whole time and energies to the public service. At the same time the system should be simplified as much as possible, and as few offices created as would suffice to insure efficiency, under the supposition that each officer would labor industriously and faithfully, at all proper times, in the performance of his full duty. It is not wise to have a multiplicity of officers, at moderate compensation, and having but little to do. Far better to have as few as practicable, require full service of all, and pay each enough to satisfy him fully and to keep him contented in his place.

The question of water supply is one of great importance, and in every State there should be an able commission to consider and regulate the supply, distribution, and conservancy of water in all details, thus embracing and controlling, according to law, the whole question. Under their direction there should be State hydrogeological and sanitary surveys, to ascertain accurately the sources and character of water supply, and to investigate and give counsel relating to the subjects of drainage, sewerage, the planting of forests—particularly of the eucalyptus—and of any other subject or matter tending to have influence upon public health. They should not only consider and deal with water supply and distribution, but with river conservancy, river pollution, and the disposal of sewage—all germane to the same matter, and intimately connected with each other. As aids to such a central State Commission, there should be Health Officers, Health Inspectors, Sanitary Engineers and Surveyors, Analytical Chemists, and Microscopists, and such other subordinate officers as might be found to be necessary to insure due efficiency in all the departments of the general system.

The whole State should be governed by uniform sanitary laws, and be so districted and officered that no portion, whether urban or rural, would be without proper and efficient sanitary supervision. Under such arrangement the water sheds of the principal rivers would most likely be looked to primarily as the natural boundaries of the different districts, special arrangements being made, where necessary, for particular towns. The prevailing tendency is for our rivers, as for all other rivers, as a rule, through the length and breadth of the land, to be converted into open receptacles of fœcal matter and of every species of filth or sewage, but such misuse, so disastrous in its effects, should not be permitted or tolerated. In no case should sewage from inhabited towns or dwellings be allowed, unchecked and unpurified, to flow into watercourses, as though they were the natural outlets and outfalls for systems of sewerage. Nor is any process of purification sufficiently effective to be relied on to render such sewage innoxious; and the safer plan is, therefore, never to permit it to be discharged into the streams. The average specimen of water from a water supply is not a fair sample to be considered in deciding upon its fitness for use, but rather the most impure that may be furnished at any time. The public should, indeed, insist on the practical carrying out of the true principle, as laid down by Mr. John Simon, viz: "It ought to be an absolute condition for a public water supply that it should be uncontaminable by drainage."

It has become to be a well settled opinion that all cities or towns of much size should own and control the water works designed to supply them with water for general purposes, for then there would be far more certainty that each place would have a more constant and abundant supply of pure water, and at a much less cost to consumers than if furnished by private or incorporated companies. Such companies are not always to be relied on to furnish a pure quality of water, and, besides, they are often prone to exact prices for the supply that give them immense profits on their investments, while the rate is most onerous to the consumers. These facts have been signally shown and exemplified in some cities that might be named.

As auxiliaries in the work of insuring the requisite supply of pure water and air to any community, and of promoting generally human health, proper systems of drainage, sewerage, and ventilation are, as before intimated, of the highest importance, as are also the designs or plans, or general arrangements, observed in the construction of dwellings and other buildings, including the plumbing work used in their drainage or ventilation; and to realize the benefits of these systems it is indispensable, or imperatively necessary, that there should be a sufficient number, as stated, of all the officers that have been enumerated. The sanitary engineer should not only plan systems of drainage and sewerage, but have a voice in the selection and laying out of town sites at the founding of new places, at which time such systems should be adopted. He should also co-operate with the architect in supervising the work of draining and ventilating buildings, and, afterwards, he should inspect, from time to time, all plumbing work, that no fault of original construction, or derangement subsequently arising, shall cause, unsuspected, serious damage to health.

The analytical chemist is most useful in analyzing food, liquors, wines, or drugs suspected to have been adulterated, as well as water or air polluted by any deleterious material; and the microscopist may practice his art in the examination of the same articles, to settle the question of their quality as to purity or impurity, and to determine, as far as practicable, the nature of any contamination where such may exist.

Having here made many suggestions to the public at large, to be taken and treated at their worth only, it would be superfluous to undertake to forecast more in detail what, in my opinion, should be done, as such systems as may be required or deemed appropriate any-

where must be framed and put in operation by Governments or States, possibly incited thereto or assisted therein by scientific men who are sanitarians by natural impulse or choice, and who deserve to be classed among the greatest benefactors of mankind.

Such systems would contemplate and require large expenditures of treasure, but this should not deter any public authority from entering upon any necessary undertaking having such a proper object in view. It would be but the expenditure by the people of their own means for their own protection, including that of the dependent and helpless ones whose special care should be favored by every truly manly and generous spirit, regardless, in a great measure, of his own personal comfort or welfare. And as a healthy and vigorous population is regarded as constituting the true wealth of a nation, it is the highest duty of Government to protect and to preserve the health of its people by all the means and agencies that can be commanded, regardless of pecuniary outlay. Many millions of dollars, in some cases billions, are expended in the prosecution of sanguinary wars, public or civil, foreign or domestic, based upon some fancied wrong, or upon a principle or a technicality, or, yet, to crush out or to sustain a dynasty; and such wars, attended with such sacrifices, and however resulting, are tolerated, acquiesced in, and sustained alike by both the victors and the vanquished.

In view of such facts, it is not reasonable to doubt the readiness of any civilized people, when made sensible of the real issue, and of the momentous consequences involved, to submit cheerfully to any amount of taxation that might be necessary to secure to them pure food, pure water, and pure air, and to protect themselves and families from the awful scourge of pestilential disease, with its sad concomitants and sequences of suffering and mortality.

It is encouraging that our Federal Government has recognized the importance of Public Hygiene, and that a National Board of Health has been established, to counsel and co-operate with State Boards of Health, as well as with Sanitary Boards, Associations, and Congresses in other countries. And a further encouragement is the fact that Congress has provided for representation from this country in an International Conference, in which all countries subject to cholera are invited to participate.

In this State it is to be hoped that our public school system, at the head of which is the State University, will be utilized for the scientific and thorough education of an ample corps of scientists to fill all

the places that may be provided for in the comprehensive and complete sanitary system that should be established here without further delay. Now is the time to inaugurate such a system, when the country is comparatively new, and before certain vicious customs, previously mentioned, too prevalent everywhere, and most insanitary in every respect, shall have been firmly saddled or entailed upon it—before our noble rivers, besides being filled with mining debris and thereby rendered innavigable, shall be fully converted, by one of these bad customs, into common sewers, the receptacles of every species of foulness, whereby their waters shall be made unfit not only for the domestic use of man but even for the habitation or the propagation of fishes, an evil that is now rapidly increasing in magnitude. Then, to recapitulate further, the present water supply is, as a general thing, faulty and impure, and is constantly becoming worse, when wise action could easily render it good everywhere. And so, as to drainage, sewerage, the disposal of sewage, and the construction and ventilation of buildings, there are imperfections and faults that should be corrected as speedily as practicable.

We should, therefore, look and appeal to the next Legislature, with the co-operation of our State and municipal Boards of Health, and all others taking an interest in sanitary matters, for the initiation, by bold and decisive legislative action, of such work in this direction as would strongly tend to produce soon results highly creditable to the State, and signally beneficial to us as a people.

REPORT ON GYNECOLOGY.

BY WILLIAM H. MAYS, M. D.

The areolar tissue of the pelvis may be said to be more prone to inflammation than any other tissue of the body. This fact, of so much importance in gynecology, is liable to be overlooked. The areolar or cellular tissue forms what might be called the "padding" of the pelvis, cushioning its organs and maintaining their resiliency. It constitutes the substance of the broad ligaments, invests the uterus in its lower two thirds, spreads to the sides of the vagina, rectum, and bladder, and is continued into the iliac fossæ, acting throughout as a carrier of the blood vessels, nerves, and lymphatics to and from the pelvic organs. It will be seen that inflammation of this tissue is not simply an evil in itself, but entails interference in the nervation and blood supply of other structures. Yet, pelvic cellulitis, next to cervical erosion, is the most common disorder met with by gynecologists. Dr. Emmet writes:

"I do not exaggerate when I claim that this disease is by far the most important one with which woman is afflicted. Practitioners habitually neglect to recognize it, or they do not appreciate its importance, if by accident it be detected. Many of the disappointments and bad results complained of may be attributed to the existence of unrecognized cellulitis. A great advancement in the treatment of diseases of women will be made, whenever practitioners become as impressed with the significance of cellulitis as to apprehend its existence in every case. The successful operator will be he who is always on the lookout for cellulitis, or who is taking measures to guard against its occurrence."

These emphatic words of so prominent an authority deserve to be taken deeply to heart by practitioners generally. Let us look at a few of the ways in which this trouble is set up. A physician inserts a sponge tent for the purpose of dilating the uterine canal. On removing it the mucous villi caught in the interstices of the sponge are torn off, and septic points created. A second tent is inserted to complete the dilation, and septic absorption ensues, with pelvic cellu-

litis as a rapid sequel. Again, a caustic application is made to a catarrhal cervix. The patient returns in two or three days, and the application is repeated, in spite of a pronounced vaginal puffiness around the cervix, which should emphatically give us pause. Next day the vaginal roof is tense with cellulitic engorgement. These are instances were the blame may be laid at the door of the physician himself. Again, consider the amount of cellulitis that is lighted up by pessaries. Useful as they are, indispensable as a mechanical support often is to the uterus, I am convinced that in the totality more harm is done by pessaries than good. Not that there is a lack of skill manifested in their application, but from a non-appreciation of the often extremely irascible nature of the pelvic cellular tissue on which these instruments depend for their support and leverage.

But there is a prolific cause for this inflammation, which seems to have been overlooked by writers on the subject. I allude to the routine use of the bivalve speculum. For general office work the self-retaining bivalve speculum has routed all others from the field; that of Higbee enjoying, perhaps, a surplus of favor. The Higbee is certainly a great advance upon the old Ferguson tubular, but it should be remembered that this speculum retains itself in position by putting the vagina to stretch. On screwing open the instrument, its anterior blade is projected remorselessly upward against the triangular block of cellular tissue lying between the bladder and the uterus, from pressure upon which space or block it gains its *point d'appui*. Given an "irritable uterus" (a favorite term of the elder Meigs, but which has been allowed to drop out of use,) and it cannot be doubted that the frequent use of the speculum is a source of much injury and bruising to the pelvic connective tissue. Under no circumstances should the speculum be used continuously. Under no circumstances should it be inserted until the examining finger has determined beforehand the non-existence of cellulitic hardness. The same caution applies to the Sims speculum, for no appliance is so good but what it may be abused. Used as it should be, simply as a perineal retractor, it is by far the safest and best of all speculums, but I have myself, more than once, found evidence of a localized post-uterine cellulitis set up by its undue or improper use. Cases are constantly arising, in gynecological practice, where to desist entirely from the use of the speculum for a fortnight is the very best treatment that can be instituted. If local treatment must be continued meanwhile, it will be found that by using the forefinger of the left hand as a

perineal retractor, wads of cotton prepared with glycerine and bismuth may be applied to the os quite readily.

The operation for lacerated cervix uteri, known as Emmet's operation, or hystero-trachelorrhaphy, has become of late a recognized, it might be said a popular, procedure. During labor the os uteri is often torn to a greater or less degree; sometimes so extensively as to involve to whole length of the cervix. Should nature fail to unite these rent surfaces, a train of evils may be set up, resulting in the confirmed invalidism of the patient. The vaginal portion will present the appearance of having been divided into halves or flaps, the downward pressure of the womb causes these flaps to roll outward on the floor of the vagina, the everted membrane erodes and becomes the subject of cystic disease, nervous disturbances set in, and the process of involution is seriously impeded. The distinguished Emmet, the first to recognize and describe this lesion, draws a vivid picture of its ill effects, going so far as to include epithelioma among its possible sequels. The os after this accident may present a bifid or a stellate appearanee, depending upon the direction of the rupture or ruptures. But in the vast preponderance of instances the laceration occurs at the left angle of the os; so far as my observation goes, confirmed by that of my preceptor, Dr. Beverly Cole, and others to whom I have spoken on the subject. This has been ascribed to the extra distension set up at that angle by pressure of the vertex in the obstetrical first position. If I may venture an opinion, however, I would be inclined to regard it as nothing more than a manifestation of that tendency to leftsidedness observable in gynecic disorders generally. The left is woman's vulnerable side. The left iliac region, it need hardly be said, is far more commonly the seat of tenderness than the right. Cervical trouble reflects pain to the left groin. The left ovary is more prone to cystic disease than its mate. Left lateral obliquity of the womb is more common than the right. Cellulitic engorgement, pelvic abscess, fallopian fetation choose by preference the left side more often than the right. The explanation of this tendency involves the question of the predominance of the right side over the left throughout the human race, a subject upon which it will not be profitable now to enter.

The operation for the relief of this train of evils, namely: the denusion and stitching together of the sundered surfaces, has reflected unstinted credit on its author, Dr. T. A. Emmet, and through him upon American gynecology. His simple method of demonstrating a

ruptured cervix by drawing together the lips with two tenaculums was hailed by Peaslee as a master-stroke of genius, a tribute the justice of which no one will be found to dispute. But I am afraid the disposition is just now to a too frequent resort to this serious operation. It is my conviction, and I know that there are many others who think as I do, that this procedure so useful in its place, is being done far more often than there is any need for, and that there are many who are beginning to look upon it as a panacea for nearly all the forms of cervical disease. All new discoveries have to pass through what might be called an exaggeration period before they at length settle down to their proper level. So with the operation in question. There is something so simple and direct about it as to make it almost captivating to the surgeon's eye. Here is Nature at fault as usual, and art coming triumphantly to her relief with a neat plastic operation. Could anything be plainer? One writer in his enthusiasm advises the measure even after the ordinary slight lacerations of labor; which is simply throwing overboard all faith in the restorative powers of nature. Proceeding on such a rule, nine tenths of parous women would have to be made the subjects of surgical operation. Let it be remembered that a certain amount of laceration accompanies every labor, whether normal or abnormal. Let it be remembered too that the cervixes of all women who have borne children present evidences of puerperal tearing; all the way from slight irregularities of the os to clefts extending deep into its structure. Is there any one of us who has not again and again found such a condition co-existing with perfect uterine health? A lady is now under my notice whose cervix, torn at an instrumental delivery four years ago, presents the appearance of three distinct divisions or lobes, with sulci between extending down to the vaginal junction. She had a good getting-up, and has since enjoyed good gynecic health. Imagine this lady overtaken with a transient cervical catarrh, and how many practitioners, instead of proceeding to cure it by patient topical work, would at once make her the victim of a severe operation? Yet I maintain that this would be little short of malpractice. An ordinary endometritis of the parous uterus may present to us a tumefied cervix with its inner surface bulging at the point of least resistance and lips widely separated. But this must not be construed into an indication for Emmet's operation, not even though the experimentum crucis of Emmet may be applied, namely: the everted lips brought together by tenaculums and the diseased membrane almost hidden behind the

approximated vaginal walls. Again and again have I marveled at the amount of contraction taking place after disappearance of the endometritis, in cases where at the commencement of treatment I thought trachelorrhaphy would certainly have to be resorted to.

Emmet's operation, no matter how skillfully performed, is always one of great gravity, and sometimes instead of success terminates in the disastrous mutilation of the patient. I have known instances where the forcible dragging of the uterus toward the vulva during the operation, so bruised and strained the peri-uterine structures as to inflict upon the woman an intractable sub-acute cellulitis that threatens to overshadow the rest of her life. I do not pretend to intimate that the operation is usually attended with this amount of violence, but it is well known that the stitches cannot be passed without a certain amount of straining of the pelvic cellular tissue—the tissue which of all others is the most delicate, the most sensitive, the readiest to inflame, the quickest to resent anything like rough treament. There are also the dangers of cutting into or puncturing the peritoneum, to say nothing of the chances of the failure of the denuded surfaces to unite, in which the last state would be far worse than the first.

As far as my own practice goes, I must admit that at first I was much taken with the operation, and performed it more often in former years than of late. There are many others who reckon their trachelorrhaphies in a similar declining ratio, although never ceasing to regard it as one of the most valuable contributions ever made to gynecology. Dr. Atthill, of Dublin, referring two years ago to the increasing popularity of this procedure, deplored the tendency on this side of the Atlantic to "lose sight of every therapeutic application except the knife." Turning to New York, I find Dr. Fordyce Barker testifying that "many cases of laceration get well without surgical interference." Dr. A. Jacobi claims that "puerperal lesions of this class do not necessarily demand operation;" while Dr. D. Gaillard Thomas cautions in emphatic terms against attaching too much importance to cervical lacerations.

We live and think in cycles. Even fashion is subject to this law, and fashions in medicine have always characterized our science. The fashion of sewing up the uterus as an ordinary therapeutic measure may be expected to have its day, and then its true worth will be recognized—that of a most valuable, but serious and not often demanded, operation.

REPORT ON OPHTHALMOLOGY.

BY N. J. MARTINACHE, M. D., CHAIRMAN.

In meetings of this kind I need no excuse for omitting a long introduction, and I shall therefore at once communicate that which I have thought may interest my hearers.

Cornea-grafting was attempted many years ago, but all the cases in which it was tried resulted in failure. Recently, however, some encouraging results have been obtained. When loss of transparency of the cornea, consequent upon previous inflammation, is of itself the cause of blindness, various methods have been tried, but without success, to replace the opaque cornea by a transparent one, so as to restore the sight.

Dr. J. R. Wolfe, after much clinical researches and numerous laboratory experiments, presents the following propositions:

1. A transplanted cornea may preserve its vitality and transparency when borrowed from a human eye recently enucleated.

2. Every incision in the cornea must be neat; any tearing or irregularity is a cause of suppuration; the grafting measures must be exactly made.

3. The operation must be performed without injury to the underlying tissues, which is impossible in attempting to transplant the entire cornea, for, as soon as it is removed, the lens and vitreous humor escape, and hemorrhage takes place; and should the new cornea retain its transparency, blindness would nevertheless be unavoidable. It is not necessary to remove the whole of the cornea; the chances of vitality for the transplanted flap are in inverse ratio to its dimensions. A small cornea flap is sufficient to restore the sight, and a conjunctival flap removed with it will maintain the corneal one in place and secure its vitality, even when the corneal sections are not immediately united.

Obs. J. P.—Forty years of age. Serious injuries to the eyes, caused by an explosion which occurred two years before. Right eye lost; left eye tattooed with grains of powder; margin of the cornea covered with a false membrane, the rest of the cornea completely opaque, with central perforation and protrusion of the iris. The light

could be followed in every direction, and the perception being good, the operation was decided on.

The first subject having been chloroformed, a conjunctival flap was detached on each side of the cornea, turned over on it, and the eye was enucleated. A corneal flap was removed with that of the conjunctiva and placed in tepid water.

The second subject was then put under chloroform, a conjunctivo-corneal flap of the same size as the other was removed, the transplantation made, and the flap secured by sutures in the conjunctiva.

Union took place by first intention, and on the fifth day the patient could distinguish and count objects; on the ninth day he could count fingers and distinguish a ring on the physician's finger. A month after the operation the patient could distinguish the difference between the color of a sovereign and that of a shilling.

The important problem of transplantation of the cornea is only to be solved by the strictest attention to the details of the *modus operandi.*

In a case operated on by Durr, the cornea became hazy two years afterwards, but the patient could still read Jæger's No. 12.

As the author of the treatment of ulcers of the cornea by the actual cautery, I am happy to be able to report that my method, with galvano-cautery or thermo-cautery has been employed by a great number of physicians, and it has been extended to the treatment of conical cornea by Gayet of Lyons. With one patient he employed Græfe's method, on one side, and the visual power increased from $\frac{1}{60}$ to $\frac{1}{20}$.

The other side was treated by the actual cautery, and the increase was from $\frac{1}{36}$ to $\frac{1}{6}$ or about $\frac{1}{10}$ in favor of the actual cautery.

I have thus far treated about fifty cases of ulcers of the cornea with perfect success by the actual cautery; cases which had proved to be incurable by other means.

Græfe's method of operating for cataract is losing ground, and that of Daviel is again in favor. In this, as in most other maladies, there is no system which is applicable to every case, and the intelligent surgeon will operate with or without iridectomy, according to the size of the nucleus of the cataract.

I have lately observed a lesion of the cornea, which to my knowledge has not been mentioned before. It is a rupture of the deep layers of the cornea, with preservation of the superficial and almost of the epithelial ones, caused by the impact of a piece of wood which the patient was chopping.

In other parts of the body lesions of deep organs with preservation of continuity of the skin are of more common occurrence.

I divided the external layer, and removed a large hernia of the iris. The wound healed in a short time.

An intermittent paralysis of accommodation came under my notice a few months ago. The vision at a distance was good, but the patient could not read. After making the diagnosis, I ordered sulphate of quinine, which rapidly restored the power of accommodation. Other means had previously been tried, without effect.

Another curious case was that of a severe intermittent neuralgia of the whole eye. The symptoms were pain at irregular periods, but especially at night, and general congestion of the conjunctiva, not indicative of any special inflammation.

A purgative was administered, and large doses of quinine sulphate given afterwards. The pain ceased and the patient recovered without any other treatment.

The object of a new operation called enervation or neurotomy, is to avoid enucleation of the eye-ball in some cases. It consists in the simultaneous section of the ciliary nerves and optic nerve behind the eye-ball. It was first proposed by Rondeau, in 1866, and to him belongs the honor of having had the first idea of the optico-ciliary section, and its application to the prevention of sympathetic opthalmia.

In 1876 Boucheron proved that enervation is not only capable of interrupting the nervous continuity between the two eyes, but can be performed without troubling the nutrition of the eye-ball; and he was the first to perform the operation on a patient, although without success.

In 1877 Scholer performed several successful operations, and Dianouxe practiced the operation, detaching the rectus extermus, and gave it the name enervation.

In all, thirty-six cases have been reported by Abadie, Meyer, Chrisholmn, and others, as successful.

The operation of enervation may be practiced when a lost eye is a source of trouble, by causing pain or inflammation, even in the absence of sympathetic ophthalmia; or when a lost eye which is absolutely painless determines sympathetic symptoms in the other, which sometimes happens.

The operation has three stages: 1—External strabotomy; 2—Section of the optic nerve; 3—Section of the ciliary nerves, after bringing forward the posterior part of the eye-ball.

REPORT OF COMMITTEE ON DISEASES OF WOMEN AND CHILDREN.

BY O. O. BURGESS, M. D.

The reports of your Committees on Obstetrics and Gynecology leave little to be said upon the subject of Diseases of Women.

I shall invite your attention, however, to a brief consideration of a few inquiries regarding certain tumors of the ovary, which seem to me to be invested with a good deal of practical importance, and to which my attention has been especially attracted by cases recently under observation. The first questions will relate to

COLLOID CYSTOMA OF THE OVARY,

And will be brought out in the following brief sketch of the history of a case which has lately occurred in my own practice: On the fourteenth of October last, I was called in consultation to see a case of abdominal dropsy, with a view to paracentesis. The patient was a lady 54 years of age, with a previous history of fairly good health. No symptoms of organic disease likely to produce ascitic accumulation were apparent, and her present suffering seemed to be due simply to the enormous distension of the abdomen. There were points, however, in the history of the case which, together with the absence of other causes for the dropsy, led to a suspicion of the existence of an abdominal tumor. But no evidence of the fact could be obtained by physical examination, until after the withdrawal of six gallons of ascitic fluid by tapping, when it was easy to make out a multilocular tumor of the right ovary. It was movable, elastic to the feel, and gave a somewhat obscure sense of fluctuation—as of a cyst over-distended with fluid. It extended to within a couple of inches of the umbilicus, and, as nearly as we could learn, had been produced within the last three years. The ascitic fluid obtained was of the usual light straw color, and was not bloody.

A moderate attack of peritonitis followed the tapping, but seemed to yield readily to the treatment adopted by the physician in attend-

ance. It was accompanied, however, by a rapid re-accumulation of ascitic fluid, so that in less than two months she was as full as ever. At this time, when I saw her again, her girth at the umbilicus was 56 inches, her feet and legs were swollen—in fact, her whole body was œdematous, her appetite was gone, and her strength was rapidly giving way under the sufferings she endured. Under these circumstances she readily consented to an operation for the removal of the tumor, which was done on the fourteenth of December, just two months after the tapping. After evacuation of the ascitic fluid, the tumor came into view, presenting the usual glistening, pearly white color and smooth surface of multilocular ovarian cysts. No adhesions were found on sweeping my hand around it, except at one point, posteriorly, where there was slight resistance which yielded as readily as a slender cobweb. Puncture of the largest cyst with a large trocar yielded no fluid, and it soon became apparent that the whole mass was filled with colloid material. The cyst walls, also, were so soft and friable as to give way everywhere under the fingers during the manipulation necessary to removal. The pedicle was secured in two sections by carbolized, silk ligatures, and dropped. A small simple cyst of the left ovary, with fluid contents, was now discovered and removed, as also a very small subserous fibroid of the uterus—both by ligature. The "toilet" of the abdomen was made as complete as was practicable, although some portions of the spilled contents of the tumor were unavoidably left behind. The peritoneum presented no evidences of malignant disease, but was much softened by chronic inflammation. At one point troublesome oozing of blood was found, coming from a denuded patch of softened tissue involving a portion of the mesentery and the contiguous intestinal surface. This furnished a most disagreeable suggestion of malignant degeneration; but it was probably the seat of the adhesions spoken of above, which had given way so easily because of inflammatory softening of the peritoneal surface. The operation was done under full antiseptic precautions, and the patient recovered without an untoward symptom. She remains well at the present writing—more than four months after the operation.

The question to which I wish more especially to call your attention in connection with this case, is as to the malignancy or non-malignancy of the tumor. To summarize briefly the leading points: we have, in a patient 54 years of age, a large ascitic accumulation coexistent with a moderate sized ovarian tumor; a peritonitis that may

have been due to the irritation of malignant disease; a raw and bleeding patch of softened tissue; a softened, degenerate condition of the tumor walls; and, finally, the colloid contents of the tumor. On the other hand, we have no semblance of cancerous cachexia; no pain, and no evidence of inflammation until directly after the tapping; no blood in the ascitic fluid; no nodular condition of the cyst walls; no apparent malignant disease of the peritoneum or other structures; and finally the excellent condition of the patient's health four months after the operation.

Dr. Peaslee speaks of a large ascitic accumulation rapidly formed while the tumor is still very small, as one of the most important signs of malignant disease, although not patho gnomonic. And I notice in looking over Mr. Spencer Wells's tables of exploratory incisions and incomplete operations, that out of ten cases in which the presence of ascitic or peritoneal fluids is noted, eight were cases of evident or suspected malignant disease, while the other two were cases of large uterine fibroids. Dr. Tait lays great stress upon the bloody character of ascitic fluid when associated with cancerous tumors, and upon the co-existence of malignant peritoneal disease. It seems quite evident to me that any abdominal tumor may set up peritoneal irritation or inflammation, and thus induce ascitic effusion. And it is not difficult to conceive of conditions, aside from malignant disease, which would furnish blood corpuscles in such fluids—notably in cases of papillomatous outgrowths, which are now considered by such authors as Peaslee, Emmet, Thomas, and others as not necessarily malignant. As a sign of malignant disease, therefore, we may look upon ascitic accumulation as of no importance except when associated with other signs that are less equivocal.

In the case under consideration the peritoneal inflammation seems to have been set up by the tapping, and the softening of the cyst walls may well have been produced by the processes of simple inflammation. We come now to a consideration of the colloid contents of the tumor.

Up to a comparatively recent date the term *colloid* was always used to designate a variety of cancer. But, following the advance of pathological science, it has been restricted by most of the later writers to its definite meaning of "a gelatinous substance," and nothing more. It may occur in growths that are cancerous, and in those that are not cancerous. Thus we may have, as Virchow states, colloid fibroma, colloid sarcoma, colloid adenoma, as well as colloid carcinoma.

The process of colloid degeneration is not intrinsically malignant. But this view, as applied to proliferating cystoma of the ovary, is not universally accepted, and we find so high an authority as Mr. Spencer Wells still maintaining that colloid degeneration is a cancerous condition, or "a sort of intermediate form of disease having intimate alliances and resemblances on the one hand with the innocent single cysts, and on the other often being intermingled and confused with the most rapidly spreading and malignant cancer growths." Cruveilhier, whose admirable illustration of the appearances presented by the vesicular cyst, or so-called alveolar cancer, is so well known, insists upon its malignancy, and his opinion is adopted by Courty and other authors. But, as has just been stated, by far the greater number of modern authorities sustain the view that colloid tumors are not of a malignant character.

Dr. Peaslee remarks that "in regard to colloid cancer of the ovary, it should be said that no amount or variety of consistency of colloid contents of an ovarian cyst demonstrates its malignant character, and the expression should be dropped;" and, again, while speaking of alveolar cancer, which is certainly the worst form of colloid cyst, he says, "I do not regard this form as cancer, and have removed two such cysts by ovariotomy, the patients having already lived more than twelve years since the operation." I shall claim finally that in proliferating cystoma, whatever the contents of the cysts may finally become, they have been colloid in the earlier history of the growth. For, whether we accept the theory of Virchow, supported by Foerster, Rindfleisch and Mayweg, that the proliferating cystoma originates from a colloid degeneration of the ovarian stroma itself, or that of later authors, as Klob, Spencer Wells, Wilson Fox, Waldeyer, and others, who claim that the first cysts have an epithelial origin, and are formed by a dilatation of Pflueger's ducts, all agree that the contents of these early cysts are always colloid. I hardly need to add that at a later period of their growth the larger cysts seldom contain colloid in any appreciable quantity. The practical conclusion is, therefore, that other things being equal, colloid tumors of the ovary should always be removed.

But that cancer may co-exist with colloid cysts, and that it may invade any benign ovarian growth as a secondary deposit, is admitted on all sides. And here arises a question of the most vital interest, namely: how to differentiate the malignant from the non-malignant in the diagnosis of these growths, or, what comes nearly but not quite

to the same thing: how to distinguish tumors that may and should be removed from those that should be let alone. It need not be urged that while it would be improper and disastrous to attempt the removal of a well-marked malignant tumor, it would be a worse blunder to mistake a benign tumor for a carcinoma, and by refusing to operate deprive the patient of a fair chance of life.

The diagnosis of carcinoma of the ovary is sometimes easy; but in many cases it is attended with almost insurmountable difficulties. I have lately met with two cases which, in addition to the usual signs of ovarian tumor, presented a complete picture of the signs of cancer of the ovary, as drawn up by Courty. These are: the period of life at which the disease makes its appearance (usually after 40); rapidity of development and progress (patients often dying within the year); nodular form; small or moderate size; hardness, sensitiveness, and painfulness of the tumor; early alteration of the functions of the body and of the general health; œdema of the feet and legs; ascitic dropsy; sallow or leaden complexion; hectic fever and all the usual signs of cachexia. In another case, where a tumor had made its appearance eight years before, and had been tapped three or four times during the last two years, there was nothing in her symptoms when I saw her—towards the close of her life—to indicate malignant disease, except extreme debility and hectic fever. The autopsy revealed a proliferous ovarian cyst everywhere adherent and filled with colloid and encephaloid material, with malignant disease of the peritoneum and a moderate ascitic accumulation. A fourth case seen two years ago at the Samaritan Hospital, London, under the care of Mr. Thornton, and which had been examined several times by Mr. Spencer Wells, defied any nearer approach to a diagnosis than that there was a tumor—probably of the ovary, accompanied by ascitic dropsy. An exploratory incision revealed a colloid proliferous cystoma of the ovary, with cancerous deposits and curious looking villous outgrowths covering portions of the cyst walls, peritoneum, and other organs. Mr. Thornton removed the tumor, remarking at the close of the operation that the patient would probably linger along for a few weeks and then succumb to the malignant disease of the peritoneum. A fifth case occurring but a few weeks ago in the practice of one of our most eminent gynecologists, and which was examined by a number of medical men in consultation, left us all in doubt as to whether it was a case of fibro-cystic disease of the uterus, or of both uterus and ovaries. The question of malignancy was discussed, and, although

not fully decided, the general belief seemed to be that it was not malignant. This tumor had been tapped about a year before, and had subsided out of reach after the tapping. An exploratory incision made by the surgeon in charge revealed a lobulated tumor possessing the pearly glistening appearance of an ovarian cystoma. Fluctuation was distinct in the larger cysts, and, although many strong adhesions were within reach, it was hoped that by evacuating the cysts to obtain room, the adhesions might be overcome or the tumor enucleated from its envelope. Neither expedient could be availed of. The tumor involved the uterus and both ovaries, and was adherent to everything. The interior of the opened cyst presented malignant looking papillomatous or dendritic outgrowths, and deeper portions of the mass gave the hard, nodular feel of schirrhus. Nothing could be done except to stitch the open cyst to the edges of the abdominal incision and close up the wound. This patient died of exhaustion, at the end of a week, a fluid secretion from the cyst making its appearance between the sutures after the fourth day.

One more case illustrating still further these difficulties of diagnosis, and a certain contingency that may arise in exploratory incisions, and I have done with this subject. This patient was only twenty-five years old, beautiful in form and feature, with nothing in her general appearance nor in the history of her case as given by herself to suggest a thought of malignant disease. There was a tumor of the abdomen which seemed elastic through its central parts with an obscure sense of fluctuation. It was evidently lobular, and seemed to be ovarian; but there was a hardness of parts of it which raised a suspicion, not so much of cancer as of fibroid growth with cystic degeneration of the more central portions. Her physician, who stands deservedly among the foremost of the profession, had refused at first to attempt anything in the way of surgical interference. But yielding to the urgent solicitations of herself and her friends, and in view of the somewhat rapid increase of size of the tumor, he finally consented, after consultation with his colleagues, to make an exploratory incision, to be followed up by a complete operation, if practicable. As the knife of the operator entered the peritoneum, we were all surprised to see a gush of bloody fluid, followed by a considerable hemorrhage. A soft, medullary growth had been entered, which seemed to spring from the peritoneum and a mass lying below, which was unmistakably cancerous and involved the uterus and ovaries. It was at once apparent that the only way in which the bleeding could

be stopped was to reach the blood supply of the whole mass; in other words, to overcome the numerous and almost invincible adhesions, get down to the broad ligaments and junction of the body with the neck of the uterus, ligate all these structures furnishing blood supply, and remove the superincumbent mass, including the body of the uterus and the ovaries. This was accomplished with the greatest difficulty; but the shock was too severe for the patient, and she succumbed four hours after the operation. In this case no thought of attempting to remove the growth would have been entertained after discovery of its nature, under the ordinary conditions of exploratory incision. But in the condition encountered the choice lay simply between certain death from hemorrhage and the course which was pursued.

In most instances exploratory incision may be resorted to under antiseptic precautions without serious danger to the patient, and it is often the only method by which the diagnosis of doubtful cases may be cleared up. Aspiration and the microscope may sometimes determine the malignancy of a cystic growth; but they cannot determine its removability. And I think we may lay it down as a rule that doubtful tumors, and sometimes malignant tumors, that admit of ready and complete removal, may always be removed with advantage to the patient. She can have but a limited future if left to herself, while many cases are recorded where the removal of exceedingly doubtful growths has resulted in thorough and complete recovery. The risk, also, that benign growths may in time become malignant, of which the third and fifth cases I have referred to are probably examples, should not be lost sight of. At the same time we may lay it down as a fixed principle that no tumor which does not jeopardize the life of the patient should be disturbed.

A NEW STYLE OF TRUSS PAD,

Proposed for the Retention and Radical Cure of Inguinal Hernia.

By E. R. ROBERTSON, M. D., of San Francisco.

Mr. President and Members of the State Medical Society: I propose to exhibit to you an original invention for the retention and possible cure of inguinal hernia. Perhaps the same principles have been brought to your notice through other methods; but for facility of application, ease of construction, and cheapness, this little contrivance has some claims. This truss pad is so contrived that it can be used on almost any ordinary truss spring, band of elastic webbing, or leather belt. It consists of a hollow leaden pad, egg shaped, or it may be cast in any other shape to suit a given case, with a soft wooden base and flange. The wood is fastened to the lead by a couple of small screws, and serves for attachment to any spring or band. The lead is cast of a size and shape to fit and completely plug up the breach, while the wooden flange rests on the surrounding tissues, and prevents the lead from being driven in to an unendurable degree, by the spring, and assists also in holding the hernia.

The philosophy of the treatment of hernia consists in exciting an adhesive inflammation, without which a radical cure cannot be accomplished. This inflammation is readily created by the egg shaped, leaden plug being forced into and retained in the breach, while it may be watched and regulated as to degree. When the inflammation is thought to be sufficient, this pad may be removed and a soft relief pad applied in its place. The coagulable lymph thrown out around the rupture will become organized and go far towards closing the breach. When the soreness shall have subsided, a smaller leaden pad may be used in the same way, and with the same view.

Practitioners in the interior are often harassed to find a truss with which to even retain a hernia, and they are always the first to be consulted when the accident occurs; but with this method they can construct a truss pad themselves to meet almost any emergency.

I have occasionally found cases of large scrotal hernia which I was unable to retain by the ordinary truss pad, and that difficulty led me to devise this one. I first made one of wood to meet the difficulty in the case of O. W. Willis, of Calaveras County, who had suffered from a large scrotal hernia for thirty years. In that case I succeeded not only in retaining the hernia, but in radically curing the case in less than one year.

I first contemplated patenting my invention, to prevent charlatans, instrument makers, and dealers in trusses from depriving the profession from using it. My present purpose is to give it to the profession, as a contribution in the interest of humanity.

I believe it is the usual practice among physicians in the city, when consulted in a case of a recent hernia, to advise the patient to go to Mr. Folkers, or some other dealer in or manufacturer of trusses, and have a truss fitted, and wear it. The patient will inquire, "Well, doctor, will that cure me?" The doctor will answer, "No, but it will retain it, and that is all you can expect."

Now, I confidently say to the profession that I have experimented somewhat extensively with my method of treatment, and made it a success. I have become somewhat expert in the application, and having changed my location to San Francisco, I have ample leisure for still further trial; and if any of you should have a case of the kind which you do not care to spend your time upon, I should be pleased if you would send it to me, which would afford me further opportunity to test my method.

FRACTURE OF TEMPORAL REGION—TREPHINING—RECOVERY.

By E. B. ROBERTSON, M. D.

Burel Oliver, age 32 years, of good constitution, and of healthy parents, on the morning of the 2d of August, 1879, while traveling with a friend in a buggy with one horse, when descending a hill, which resembled a huge pile of cobble stones, was thrown out and fell between the shafts, behind the horse. It is not positively known whether he was kicked by the horse or struck his head on a stone in the fall. When picked up he was found to have received a large scalp wound, and was entirely unconscious. He was removed to the Spring Valley House, a mile distant from the place where the accident occurred, and his traveling companion came to San Andreas for me, a distance of six miles.

I arrived beside the patient at about eleven o'clock, and found him entirely unconscious, with slow stertorous respiration, and a large scalp wound just over the temporal ridge of the left side. Upon examination, I found the skull extensively fractured just below the temporal ridge, and much depressed.

There was but one man present besides myself and the patient—Mr. Williams, the proprietor of the house. We procured a supply of cold water and some soft rags to use in lieu of sponges, and proceeded to operate as follows:

Incisions were made so as to extend the scalp wound about three inches antero-posteriorly, or from the coronal suture to the parietal boss; then at nearly a right angle toward the posterior root of the zygoma. The soft parts were stripped from the skull as carefully as possible, detaching the temporal fascia and muscle along the temporal ridge; then by reflecting these tissues forward and downward, the fracture was brought into view. It was about two inches from before backwards, and one inch and a half from above downwards, the superior border of which was just below and corresponded to the curve of the temporal ridge.

Although the skull was extensively shattered, the fragments were so braced against each other that it was impossible to get an elevator beneath either piece, as a commencing point. A disk was cut off the parietal, just above the superior border of the squamous portion of the temporal bone, which disk of course connected with the fracture; then with the elevator the shattered fragments were raised and removed, and the main depressed plate raised and held steadily with the elevator a minute or two, to allow of the expansion of the brain by the influx of blood. Although the disk removed by the trephine, as well as the broken fragments, show on their inner surfaces the grooves for the lodgment of branches of the meningeal artery, the hemorrhage was quite inconsiderable. When the blood ceased oozing the triangular flap before described, with its connecting tissues, were carefully gathered up and laid over the space in the skull, and secured with interrupted quill sutures of silver wire, and covered with lint saturated with cold water.

When pressure was removed from the brain by the operation, the patient became conscious, and remained so ever afterwards; and although he had considerable inflammatory fever, and at times slight delirium, he was easily aroused, when he would answer questions quite intelligently.

Mr. Oliver's relatives, residing near Woodbridge, San Joaquin County, having been notified of the accident by telegraph, arrived that evening, and his mother or one of his brothers remained with him until convalescent. I also remained with him the first two nights.

I deem it unnecessary to describe the progress of this case from day to day; it is sufficient to say that the treatment consisted in the constant application of cold water or ice, antiphlogistic medicines, namely: tartarized antimony, with sulphate of magnesia, at first—due attention to the bowels afterwards—and strictly fluid diet. He was not allowed to chew anything whatever during the first month.

At the end of the fifth week, a skull cap was placed over the head, with a metallic shield fastened in it to protect the weakened portion of the skull; soon after which he rode home in a buggy, a distance of twenty-five miles, more or less.

I received a letter from the father of the patient, dated Woodbridge, January 31st, 1880, in which he said that Burel had left home, and at the time of leaving his head was what they considered well.

A CASE OF EPITHELIOMA, EXTIRPATION, RECOVERY.

BY DR. ROBERTSON.

Robert Bainbridge, aged 48 years, a native of Scotland, of florid complexion, was admitted to the Calaveras County Hospital, on the 27th day of March, 1879, with a large warty excrescence surrounded by an extensive ulceration, on the right side of the neck, extending from just over the bifurcation of the common carotid artery, upwards and backwards, so as to partially cover the mastoid process of the temporal bone, and the posterior surface of the lower part of the ear, and transversely from the center of the sterno-cleido mastoid muscle, to the ramus of the jaw, and overlying the lower and posterior portion of the parotid gland. I have here the pathological specimen, to be seen by any member who may wish to examine it. You will observe the large excrescence near the center, which the patient informed me commenced about five years before his admission, and the ulceration had commenced about five months prior to my seeing him.

He had also an excrescence of the same character on the right side of the bridge of the nose, much smaller than this, which, however, had not commenced to ulcerate.

He was much harassed with darting, lancinating, and burning pains, of which he complained more at night than during the day.

My diagnosis was that of epithelial cancer, or epithelioma, and I felt certain that extirpation was the only remedy worth trying.

As the weather was very stormy at the time of his admission, it was decided to wait for a more favorable season for the operation, but in the meantime the ulcer was washed daily and dressed with carbolized glycerine, or some of the unguents, without apparent benefit.

On the first day of May, the weather being favorable, with the assistance of Dr. C. W. Shaeneman, of Mokelumne Hill, the mass was removed– the patient being under the influence of chloroform—as follows, viz: An incision was made through the skin and superficial fascia, commencing just above the upper portion of the ulceration, extending downwards, describing a curve, to a point about three

quarters of an inch below the arterial bifurcation. A second incision, also circular, was made anteriorly and connecting with the first below at an acute angle, and carried over the angle and ramus of the jaw, so at to expose a part of the parotid gland, and continued upwards and backwards through the lower portion of the ear, and connecting with the first incision above at an acute angle. The skin and fascia, thus described, including the ulceration, was then raised and dissected off by means of the scalpel or its handle, finger nails, etc. There was no blood-vessel opened that required ligation; the external jugular vein was divided and compressed; the posterior auricular and other small arterial branches were cut, but compression for a few minutes was quite sufficient to control the hemorrhage.

After oozing of blood had ceased, the edges of the wound were brought as near into coaptation as possible by means of interrupted silver sutures, supported by pieces of gum catheter for quills. The wound was filled with lint saturated with carbolized oil, consisting of one part of the acid to twenty of linseed oil, and the whole covered with the same material. The dressing was left undisturbed until the fourth day, and upon examination it was found to be adherent, when it was left until the fifth day, then removed, and the wound washed and dressed with a weaker oil. On the seventh day carbolized glycerine was used in the proportion of one of the acid to sixty of the glycerine, and the sutures were removed, as they were serving no useful purpose. On the sixteenth day, granulations being abundant, the wound was dressed with basilicon ointment, which was continued until the cure was complete.

During the whole course of the treatment of this case, there was but little inflammatory fever, and in fact nothing unfavorable occurred of sufficient importace to require mention here.

On the last day of May the excrescence on the nose was removed by two semilunar incisions, thereby removing an elipsis with the tumor. Union took place by first intention, and caused little or no inconveniece.

The patient was discharged on the ninth day of June, apparently well, but if my diagnosis was correct the disease will most likely recur, possibly in some other part of the body.

I regard this case as malignant, and the sore as a local manifestation of the constitutional taint. In any event the operation was justifiable, because it had the effect of putting off the evil day perhaps for some years.

CALCAREOUS DEGENERATION OF THE STRUCTURES OF THE APEX OF THE HEART,

With Some Observations on the Etiology and Pathology of Calcareous Infiltrations.

BY Dr. M. C. O'TOOLE.

The specimen which I have the privilege of presenting consists of the heart of a man aged 37 years, the apex of which to the distance of about one and a half inches from the point underwent a pathological change by which the muscular walls, endocardium, pericardium, and columnæ carnæ assumed the consistence and appearance of bone. It is to be regretted that so little is known of the clinical history of this case. The man died in the San Francisco city receiving hospital in 1879, two days after being admitted for treatment for the effects of an overdose of aconite taken by mistake. The possibility of the drug acting as a joint factor in the pathological formation will be considered later on.

Doctor Stivers, one of the City Physicians who made the autopsy twelve and a half hours after death, reports: "Heart much enlarged; extensive aneurismal dilatation of the ascending and transverse portions of the arch of the aorta; tumor not ruptured, the vessel being filled with a fibrinous mass, through which the blood current had formed a passage. The orifice of each coronary artery was partly occluded, valves normal; no abnormal infiltration existed in the heart except at the apex; rigor mortis absent." In the affected parts of the left ventricle there could not be found a trace of the normal structure, all being transformed into a bone-like mass. The walls of the right ventricle were less affected than those of the left. In the former could be observed islands of osteoid deposit between which were the changing structures in various degrees of consistence. The intertrabecular spaces of the apex were not occupied by concretions, the parts retaining their normal unevenness of surface. The columnæ carnæ were not all affected to the same extent, some appearing like spiculæ of bone, others containing an osseous thread in the

center of the column—the surface retaining some resemblance to the normal structure.

Microscopical inspection showed the abnormal material to be destitute of the essential elements of true osseous tissue, viz: bone corpuscles or canaliculi sections made after softening in acidulated glycerine could not be stained with carmine, but were colored blue with hæmatoxylon. Absence of the characteristic stellate tufts of crystals showed that we were not dealing with a deposit of the urates of lime or soda. Treatment with muriatic acid proved the pathological deposit to consist almost exclusively of phosphate of lime.*

It is important to consider what were the abnormal conditions by which salts of lime were deposited as an interstitial infiltrate in the heart's apex.

There exists a well recognized law regarding pathological infiltrations that, given a certain dyscrasia, it may generally be known which organ will be first to suffer from the peccant material. Superfluous fat affects by preference the liver and areolar connective tissue. Amyloid degeneration is found most frequently in the kidneys, spleen, and liver. Salts of lime, when liberated from the bones by caries or carcinomata, will produce calcification by metastasis, and the lime will select the pyramids of the kidneys and the lungs as its resting place. Post mortem examination in our case revealed no indications of supersaturation of the blood with salts of lime. We are therefore compelled to look elsewhere and to other causes for an explanation for the abnormal formation.

Salts of lime in the blood owe their solution in part to the albuminous ingredients. Carbonic acid is, however, to be regarded as the most important solvent, there being always a sufficiency of this acid in the blood to dissolve more than the normal quantity of lime. The volatile fatty acids and lactic acid also act as solvents.

The precipitation of lime from the blood, whether into the basis substance, in the formation of normal bone, or in pathological formations, will invariably conform to the general law of infiltrations, in that the deposit will first appear in those regions where the nutritive fluid is obstructed, or where it circulates with difficulty. "Small arteries, transition and capillary vessels are the first points of attack of all infiltrations."†

NOTE.—When *carbonate* of lime is treated with muriatic acid the process is marked by formation of numerous vesicles of carbonic acid. These are not seen during the solution of lime phosphate.

†Rindfleisch, Pathological Histology, p. 53—1873.

This tendency of lime to leave the blood in presence of protracted obstruction to the circulation, is the direct cause of several morbid conditions. Long continued catarrhs of the respiratory mucus membrane, by retarding the blood supply of the cartilages of the larynx and trachea, will produce calcification of those structures.

Chronic suppuration of the vertebræ will from a like cause bring on calcification of the intervertebral discs. The deposit of lime so frequently met with on the valves of the heart and on the inner coat of the vessels, in connection with the atheromatous condition may be mentioned as an additional illustration of this law of infiltrations.

Until quite recently the atheromatous process was believed to consist of an exudation of coagalable fibrin. Rokitansky held this view. It is now known that the atheromatous process is not an exudation, the so called atheromatous pulp, absess, etc., being in reality the result of endoarteritis—change in the parenchyma of the intima, or inner coat of the vessels. The intima being a non-vascular structure, derives its nutrition from the blood which flows over it. Friction by any irregularity in the blood currents, the existence in the blood of gouty or syphilitic impurities, establishes first an irritation on the surface of the intima. Irritation is succeeded by proliferation of cell and connective tissue elements. These obstruct the blood supply, and as a result the salts of lime are deposited on the surface of the vessel.

In the case under review the aneurism involved the sinuses of Valsalva, together with that portion of the arch from which the coronary arteries are given off.

As the blood passed from the left heart directly into the fibrinous mass, both conditions essential to the precipitation of salts of lime were established, viz: retarded circulation and escape of the diffusible carbonic and fatty acids between the layers and interstices of the coagulum.

As the aorta distended, the orifices of the coronary arteries were moved from their normal position in relation to the blood current; that is, they were forced from the center and received their blood supply from an obstructed circulation, which had lost its chemical solvents for salts of lime. It is worthy of observation that in this portion of the aorta the coats of the vessels are destitute of muscle-fibers. (Stricker's Manuel of Histology, p. 196.)

The superficial portion of the large trunks of the coronary arteries facilitated the flow of the blood through those parts of the vessels at

the apex; where the smaller branches turn inward through the "whorl," circulation ceased, and the precipitation of the salts of lime produced calcarious degeneration of the structures of the apex.

Microscopic specimens prepared from different parts of the structure would indicate that the process of infiltration had existed for a considerable time before death. At the point of the left ventricle, immediately under the pericardium, the deposit consists of a spongy formation, resembling rachitic cartilage. (Specimen No. 1.) The spaces are apparently the result of resorption of the lighter and more soluble constituents of the infiltrate. Preparations from other parts show a solid homogeneous material.

The quantity of aconite taken, as near as can be ascertained, was about one drachm of the tincture of the root. Death took place forty-four hours after swallowing the drug. All the symptoms and conditions pointed to narcotic poisoning.

Did calcification exist before the drug was taken? The solid formation of some portions of the structures, together with the indications of resorption having taken place at the point of the apex, would suggest an affirmative answer. It must also be remembered that in none of the numerous autopsies which have been made and recorded, where death was caused by poisoning with aconite, do we find mention of calcification of the heart's apex.

The writer would venture the opinion that to produce the pathological condition under review, both the aneurism and the depressing influence of acro-narcotic poisoning were required.

CASE (PRESENTED AT MEETING OF STATE MEDICAL SOCIETY) OF DOUBLE CONGENITAL CAPSULO-LENTICULAR CATARACT, WITH COMPLICATIONS IN RIGHT EYE, REQUIRING ORIGINAL OPERATIVE PROCEDURES

Both eyes presenting the appearance usual in such cases, needle operation was decided on.

On passing through anterior whitish layer of cortical substance, point of needle impinged against what proved to be a firm chalky concretion, the result of secondary metamorphosis. Having on more than one occasion witnessed the difficulties attending the removal of particles of such material from the eye, after operation, it was decided if possible in this instance to remove the cataract en masse.

A Bowman's needle being passed into the center of the structure, partial rotation of the handle succeeded in detaching the lens from the zonula and from the hyaloid membrane, while at the same time, and without removing the needle from the eye, a full sized upper flap section in the cornea, permitted *the entire* cataractous stricture to escape with the outflowing aqueous.

There was no loss of vitreous. The eye made a rapid recovery, with good sight.

TREATMENT OF SOME FORMS OF CONTINUED FEVERS,

WITH SALYCILIC ACID AND ITS DERIVATIVES.

BY D. K. FARLEY, M. D.

It is not my purpose to take up the subject of continued fevers to give an extended description of them, but simply to give some practical experience with regard to salycilic acid and its derivative salycilate soda in the treatment of them.

The foundation for treatment of disease is a knowledge of its pathology and histology. Not what it may be called, for the nomenclature of disease is changing almost daily. It may be called by one name to-day, another to-morrow. This country or that, or each and every writer, may give the same disease a different name and produce "confusion worse confounded." Therefore, judging from the symptoms, what may be the pathological condition, and from microscopical examination, (when they can be made,) what the histological changes are the physician can proceed to treat his case with a precision that is scientific—any other course will be guess work—and before he is aware of it he has fallen into the routine track, and treats his case by name only; and "because" such and such an authority says that or this is the course to pursue, losing his own individuality, blundering along in blind stupidity; sometimes successful, but oftener not.

Recognized as zymotic diseases, dependent upon a peculiar "contagium vivum," may be contracted either from atmospheric causes or by ingesta taken, producing enteric lesion as the principal pathological factor, with an ænemic condition of the blood, large increase of the white corpuscles above the normal quantity impoverished condition of the red, we have, as I conceive, the bodily condition in cases of continued fevers, such as typhoid and typho-malarial fever. Viewing this contagium vivum as a germ which by fermentation multiplies and increases until the system is thoroughly poisoned thereby, that when the disease is fully developed then follow the train of enteric symptoms consequent upon inflammation of the mesenteric, peyers, and bruners glands, with diarrhœa, ulceration, and hemorrhage as

the sequence, microscopic examination of the defection gives a plentiful supply of bacteria. Now I reason that an early antiseptic treatment becomes antidotal and resolvent, whereby a quicker subsidence of the disease ensues.

The family of Judge C——, of Sacramento City, spent the Summer of 1875 in the Town of Gilroy. In the latter part of the season, before frost, they made a visit to Sacramento and Folsom. After their return they were all, one after the other, taken with (a then to me) peculiar type of fever. Since that time I have become convinced that it was the so called typho-malarial fever, so well described by Dr. Hoff in the January number (1880) of the *American Journal of the Medical Sciences*, approved as such by Dr. Woodward. The fever was ushered in by a distinct chill, and assumed the form of bilious remitting fever, was treated as such; but not being arrested, and assuming a continued form, tenderness of the bowels, particularly of the right iliac region, ensued, followed in a few days by diarrhœa, showed most clearly the character of the fever. I then placed the patient upon the use of sulphurous acid and aconite, with animal broths, mucilaginous drinks, etc., and in this way my patient worried through a six weeks' fever to convalescence. When the second child was taken sick I placed it immediately upon the use of the salycilate of soda. Having used it in several cases of rhumatic fever, and seeing how promptly the pulse and temperature of the body was reduced, also how quickly the pain was relieved, and how readily the fever subsided, decided me in its use. Knowing that when the bowel complication took place, in the first case, diarrhœa came on, and suspecting there might be bacteria in the discharges, and that an antiseptic would be the remedy indicated, I reasoned that salycilate of soda would answer the indication and prove successful, should my theory prove correct, viz: that if bacteria should be in the defections they surely were the primary disturbing cause. (I have since become aware, by microscopical examination, that they are found in the defections.) I therefore concluded to put my patient upon the salycilate, prepared according to the following formula: ℞. salycilic acid ʒiii, soda bicarb, ʒii, agua font. glycerine aa q. s. ft. ℥iv. In partis Num xii Div. Sig. One part every six hours; as fever subsided, lengthening the period to eight hours. No enteric symptoms ensued in this case, and at the end of two weeks the little fellow was convalescent. When the third child was attacked it was placed upon the same treatment. The madam having had so severe a siege

became anxious, and telegraphed her husband to send their family physician (Dr. Hatch) down. After he had seen the case and consultation was held, the doctor advised the use of quinine in the treatment, (a treatment I had abandoned after its use in the first case); said that he had no experience with salycilic acid or its derivative. In two or three days after the change of treatment was made enteric symptoms came on, diarrhœa followed, and the fever became more severe. After trying the quinine for four days, I fell back upon the salycilate, with the happy result in two or three days of seeing the fever abate, diarrhœa stop, and all unpleasant symptoms disappear, followed by speedy convalescence.

In the month of January, 1878, was called to see J. L——; found that he had been complaining about a week; had been moping about the house, feeling, as he expressed it, "so tired all the time." Had taken his bed that morning. His pulse 120; the temperature 103; skin dry and harsh; some headache. His tongue was covered in the center with a white fur, edges and tip red, tremulous when protruded. Abdomen hard, sunken, concave from above downward; pain upon pressure in the right iliac region; bowels constipated, urine scanty and high colored; specific gravity 1,018, slightly albuminous, with renal epethelion and granular cast. A saline laxative was given, from which the bowels moved freely four or five times. I placed him upon the salycilate of soda, 20 grs. to the dose every four hours, with essence of beef as nourishment. For three days there was no abatement of symptoms, with the exception that the urine became more abundant and lost the albuminious character, the s. g. arising 1,022. At the end of the third day fever began to abate, and on the fourth morning (the 11th of his sickness) pulse 100, temp. 99; evening—pulse 105, temp. 100; 5th morning—p. 90, temp. 99; evening—p. 100, temp. 100; 6th morning—p. 90, temp. 98.5; evening—p. 90, temp. 98.5; 7th—pulse and temperature normal, skin acting freely; all tenderness of bowels relieved; rather constipated; had to give a saline laxative to move them. Discontinued the medicine because he complained of ringing in the ears and a very disagreeable sensation of the head. Push the essence of beef with teaspoonful of brandy every two hours. In the evening, at five o'clock, was called in a hurry to see him; had had a hard shaking ague, but had passed off by the time I got to him. The subsequent febrile reaction was great during its excess, the pulse rose to 130, and temp. to 104; subsided at four o'clock A. M. 8th day, with most profuse perspiration, at the

same time the most extensive sudamina appeared upon the abdomen that I ever saw. Rubbing the hand over them felt like rubbing it over a rough board. Quinine and brandy prevented another paroxysm. From this date convalescence steadily progressed until health was restored. On the third day all pain in the bowels was relieved; there was no diarrhœa; in fact the bowels rather constipated, and laxative enemata used to move them. With the subsidence of the disease a peculiar mental derangement, with deafness, ensued, which lasted for a week after he was up and around. I attributed it to the toxic effect of salycilic acid. This patient was confined to the bed only ten days.

Again, November 23d, 1878, saw a little girl eight years old, the daughter of Mr. G——; had returned that day from a visit to her sister, who lived at Tres Pinos, in San Benito County; been ailing about a week, moping about the house. Found her with a pulse of 130; temp. 104; tongue furred, white down the center, with edges and tip red; skin hot and dry; tenderness over the entire abdomen, more marked in the right iliac region; bowels moved regularly, dejections of a semi-solid consistency; urine scanty and high colored, (did not examine chemically). Salycilic acid was given, 15 grs. in a wafer, at 6 P. M., 12 M. and 6 A. M., with drop doses of tr. aconite (Flemings) every 3 hours during the day. Would not or could not take beef essence nor milk, but had a peculiar longing for beer, which was given, about a pint and a half during the day, and constituted her main sustenance during the period of her illness. Under the continued use of the salycilic acid all soreness and tenderness of the bowels disappeared on the third day of my attention—about the tenth since her sickness—they became constipated, and had to be moved with laxative enemata. Fever had entirely disappeared upon the sixth day of attendance—the thirteenth of commencement of attack; discontinued the medicine. No delirium, no ringing in the ears, no deafness remained from the use of the acid.

Again, on the 14th day of October, 1879, was called to see Miss D——, sixteen years old. She had been complaining about a week; took the bed this (the seventh) day. Found the same chain of symptoms as in the before described cases. During the first week of attendance, being the second of illness, I pursued an expectant course, giving a little tr. aconite every three or four hours; a sponge bath two or three times a day; warm pedeluvium at night, waiting and watching. At the end of the second week diarrhœa came on,

with an increase of the fever, accompanied with some incoherency. Examined the urine and found it albuminous. Fœcal discharges, under microscopic examination, were found filled with bacterium terms. Fourteenth day—commenced the use of salycilate of soda, 20 grs. doses every 4 hours. The third day thereafter bacteria had disappeared from the discharges, urine became more abundant and less highly colored, and albumen disappeared therefrom; tenderness of the bowels considerably relieved. The seventh day from the commencement of the use of the medicine, being the twenty-first of illness, all tenderness of the bowels had disappeared, diarrhœa had ceased, and the bowels had to be moved with an enema. Continued the medicine for two or three days longer, more as a precautionary than a remedial agent. Considered patient convalescent, and would have discontinued my visits on this, the fourteenth day of attendance (twenty-first of illness), but, owing to the anxiety of the parents, continued visiting until the 2d day of November, the twenty-eighth day of sickness, when I dismissed the case thoroughly convalescent. There was no opiate used in these cases, except one five-grain dose of Dover's powder to this patient, which, not having the desired effect to quiet and produce sleep, was not repeated.

I am well aware of the fact that it requires a more extended experience and a larger statistical report than this to fully establish the efficacy of any medicine in a class of diseases of so serious a nature as continued and enteric fevers, but when we take into consideration the effect of this medicine to lessen the pulse, lower temperature, relieve pain, check diarrhœa—in fact, relieve all the grave symptoms attending these fevers—it recommends itself as a valuable adjunct in their treatment.

One fact in the above cases, worthy of note, is the early appearance of albumen in the urine.

Dr. Greenhow, F. R. S., and the President of the Clinical Society of London, says: "Albuminuria, when it occurs, is usually a late event in typhoid fever." Leibermeister: "Not until the fever has reached its hight." In each of the cases examined albumen was detected in the second week of the fever.

LOCALIZATION OF DISEASE UPON THE CEREBRAL SURFACE WITH EXPERIMENTS.

BY J. O. HIRSCHFELDER, M. D., PROF. MAT. MED., MEDICAL COLLEGE OF PACIFIC.

MR. PRESIDENT, LADIES AND GENTLEMEN: Within the last few years the attention of the medical world has been very forcibly attracted to the hemispheres of the cerebrum by the physiological investigations of Hitzig, Ferrier, and other experimenters, as well as by the clinical results obtained by the light thrown by these researches.

Until Hitzig in 1870 first demonstrated that irritation of the gray matter of the cerebral surface produces a motion in certain muscles of the opposite side of the body, it was supposed that there was no such thing as localization upon the surface of the hemispheres, and indeed the experiments of Flourens and his school seemed to prove this, for part after part of cerebrum was removed by him without any great change being evident in the conduct of the animal as long as the quantity removed was small. As soon as a larger quantity of cerebral matter was ablated the motor and sensory functions diminished uniformly. The effect was the same, according to Flourens, in whatever part of the cerebrum the ablation was performed. If the ablation was carried still further, at a certain point the whole of these functions disappeared, to return again in a few days if a portion of the hemispheres still remained behind. These investigations seemed to prevent any thought of a localization upon the surface of the cerebrum arising, but a more careful and better localized investigation of the cerebral surfaces has proven the fallacy of the experiments of Flourens. Fritsch and Hitzig found that if certain spots upon the brain around the sulcus cruciatus of the dog be irritated with the galvanic current, movements occur in the muscles of the opposite side, and centers, as they were called were determined for the muscles of the trunk, those of the anterior extremity the posterior extremity

and the facial nerve, as is shown in Figure 1. We see the sulcus cruciatus separating the frontal from the parietal portion of the brain, and corresponding to the sulcus rolandi of the human brain. In front of it is situated the center for the muscles of the trunk. Below this center that for the anterior extremity is situated. Behind the sulcus cruciatus is the center for the posterior extremity, and above the fossa Sylvii we have the center for the facial nerve.

FIG. 1—The right side represents the brain of one dog, and the left that of another.

a.—*sulcus cruciatus, (corresponding to sulcus Rolandi in the human brain);* ▲.—*Center for the muscles of the trunk;* ‡.—*Center for the ant. extremity;* *.—*Center of the post. extremity;* o.—*Center for the facial nerve.*

These experiments have been repeated by a large number of investigators with success, and at the close of this lecture I shall endeavor to demonstrate them to you.

Ferrier repeated these experiments, but modified them by using the faradic instead of the galvanic current. He localized a large number of points upon the surface coinciding in general with those found by Hitzig. Besides these he described points further back, from which movements could be produced which Ferrier looks upon as not being motor centers, like those further towards the front, but that the movements so produced are of the character of associated motions or reflex indications of sensation—that irritation of the points in question produced sensations, and that the movements fol-

lowing were the reflex results of those sensations. The experiments of Ferrier have not been sufficiently confirmed by other investigators to insure their acceptance by science, and indeed there is a strong objection to them, namely: that even the feeblest faradic currents are so powerfully irritant in their action upon the brain that no reliance can be placed in the results obtained—that not unfrequently epileptic fits follow the use of even very feeble currents—a fact to which I can bear witness from personal observation. But even after strong galvanic irritation movements are observed, sometimes a long period after irritation has ceased, and these movements assume at times the character of well develped epileptic attacks. We have analogs of these forms of cortical epilepsy in the cases of that disease occurring with human beings in consequence of circumscribed irritation of the cerebral vortex through tumors, localized inflammations, etc.

A very interesting series of investigations have been made by Dr. Soltmann upon newly born animals, which prove that these centers are not developed until the sixteenth day after birth. This coincides perfectly with the fact that the movements of infants are not true voluntary movements, but fall under the head of the reflex.

If in an animal we lay bare the brain and irritate a part found to be a motor center, we see contraction upon the opposite side occuring; and if we then destroy or oblate the center so found, the part supplied by it shows disturbances of motility. Some of these disturbances are transient and some are permanent. In the beginning, after extensive destruction, we have a paralysis of the part which is more or less complete. After a certain period the paralysis begins to disappear, and instead we have a paretic enfeebled condition, together with ataxia of the part. The affected leg, for example, can be placed passively in the most abnormal positions, and in walking the animal frequently steps upon the dorsum instead of the sole of the foot. If the animal be elevated by the skin of the back and the feet be allowed gradually to touch the table, the affected part will be applied by the points of the toes, whereas the healthy part by the soles. In spontaneous walking we likewise observe abnormal movements of the joints. At the same time all actions that we look upon as acts of intellect are absent. Thus the dog will no longer give the paw on the affected side, but will still present the healthy one.

I have here before you a number of dogs operated upon in the manner described, in which these symptoms are clearly defined.

Irritation of the posterior regions of the brain produce no move-

ments, according to Hitzig, which fact is confirmed by the dictum of anatomy that centripetal or sensory fibers pass from the tegmentum to the posterior part of the cerebral surface, whereas the centrifugal or motor fibers pass from the pedunculi to the anterior portion of the cerebral surface.

If we would arrive at a philosophy of the cerebral cortex we are compelled to accept the deductions of Kussmaul, according to whom the following is the case. Sensory impressions are conducted to the posterior cerebral cortex, where they probably pass through various stations, some of which probably lie in the anterior part of the cortex. The will which has been called into play by the irritation of the sensory cells in the posterior portion of the cortex sends its influence to the anterior region, from whence the irritation passes to the centrifugal fibers and through them to the part to be acted upon. In other words, these centers when irritated through sensor influences (in a manner similar to the reflex action in the cord) possess the power of setting in action the machinery of the corpora striata, the medulla oblongata and the cord. At the same time they can influence the manner of operation of these lower centers, and in consequence are co-ordinatory centers. Have these centers, however, the power to produce energy, irrespective of sensor impressions? Are they more than simple regulators of motion, induced in lower centers? The experiments before explained answer in the affirmative, and the anatomical investigations of Betz confirm them. According to this microscopist the entire cerebral surface can be divided into two portions, separated by a line drawn through the fossa Sylvii, the region behind sulcus centralis rolândi and the anterior margin of the præcuneus. In the anterior region—the motor—the pyramidal cells predominate; in the posterior the granular layers. Besides these he found at the point determined by Hitzig to be motor centers large pyramidal cells differing from all others and called by him giant pyramidal cells. These are not present in the newly born but develop some time after birth.

A number of clinical cases demonstrating the applicability of these results obtained in animals to man have been observed and placed on record.

The case is reported of a woman who, after having suffered for a long time with headache, suddenly lost her speech after a fright. At the same time cramps in the right facial nerve set in, together with a feeling of numbness in the right arm and leg. Headache and vomit-

ing followed. After a quarter of an hour the speech returned but remained slightly disturbed. Later a number of similar attacks of cramp reoccurred. At the time the patient entered into the hospital, 22 days after the first attack, she complained of severe but badly localized headache, not increased by striking the head. The right angle of the mouth is lower than the left, the right naso labial fissure is absent. On the other hand, the right eye can be properly closed and the forehead well furrowed. The tongue is turned to the right when protruded. The pronunciation of certain letters, for example, is difficult, but no aphesia is present. Ten days later the patient died, and the post mortem examination revealed a cancerous nodule about the size of a cherry in the lower portion of the left gyrus precentralis, as is shown in figure 2, the dotted lines indicating the extent of the tumor, and the darkened part being where the tumor had broken through the gray matter. The new formation extended about one half inch in depth.

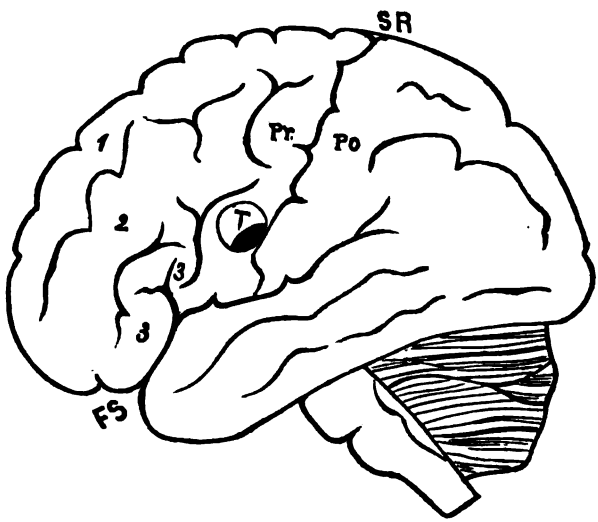


FIG. 2. F. S.—*Fossa Sylvii;* S. R.—*Sulcus Rolandi;* 1, 2, 3.—*Frontal gyri;* Pr.—*Gyrus precentralis;* Po.—*Gyrus postcentralis;* T.—*Tumor.*

Another case is related of a woman 36 years old, afflicted with mitral insufficiency, who was suddenly attacked with headache and vertigo. Shortly after this attack she observed that it was impossible for her to move her right arm and leg. At the same time a paralysis of the right facial nerve developed. Upon post mortem

examination a red softening of the gyri precentralis and postcentralis as shown in figure 3 was observed, which did not extend deeper than the gray matter, the white substance underneath being perfectly intact. The red softening had been produced by embolism, that is by the passage of clots from the diseased mitral valve which lodged in the arteries supplying the cortical substance affected, as was shown by the fact that a number of vessels of the pia mater in the region of the fossa Sylvii were likewise in a state of embolism. No other part of the brain was affected, and so we have a perfect right to ascribe the complete paralysis present to the destruction of the gray matter in the motor gyri.

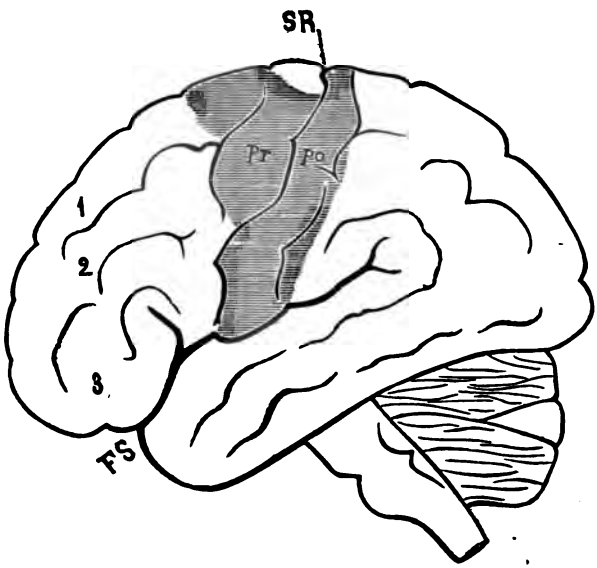


FIG. 3. F. S.—*Fossa Sylvii;* S. R.—*Sulcus Rolandi;* 1, 2, 3.—*Frontal gyri;* Pr.—*Gyrus precentralis;* Po.—*Gyrus postcentralis. Shaded part is the region of the red softening.*

THE OBSTETRICAL POCKET FORCEPS.

BY JAMES F. SULLIVAN, M. D., SAN FRANCISCO.

Every obstetrician has often felt the need of some simple and convenient extracting force which could be readily applied, in cases requiring some instrumental aid, without adjusting the woman or arousing her apprehensions.

The use of the ordinary forceps, as they are generally employed, is an operation requiring some preparation, including a change in the position of the patient and bringing her to the edge of the bed, all of which tends to excite her fears and to induce a certain amount of *nervous shock.*

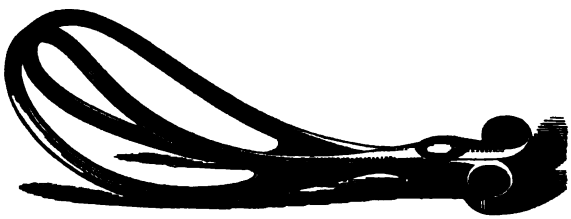
In cases where the long or short forceps are obviously needed, all these considerations have to give way to the necessity of the occasion; but there are many cases requiring instrumental assistance, particularly where the head is low in the pelvis, that delivery can be easily accomplished by the means I am about to describe, while the woman remains in the ordinary position of labor, without causing her either nervous shock or mental anxiety, and, if necessary, without her knowledge.

In labors which have progressed favorably up to a certain stage—where the head is in the pelvis and the vertex presenting at the vulva with every pain—an unlooked-for delay. frequently occurs, which may be prolonged for hours. It has happened to every accoucheur that he has prophesied a speedy termination of a labor, expecting every pain to expel the head, and has found, to his chagrin, that two or three hours may elapse without any apparent progress.

We will not take time to consider all the causes of delay at this stage of labor, such as large size of the head, shortness of the cord, too strong ossification of the head, inefficient uterine action, etc. But there is one cause which I believe has been greatly overlooked, and that is, *that the expulsive efforts of the uterus are in the direction of the superior strait of the pelvis, and are consequently at a right angle with the inferior strait or outlet,* so that when the body of the child is

in the uterus and the head in the pelvis, *a considerable amount of force is lost at the neck of the child.*

From whatever cause the delay may arise, it is convenient to have a safe and efficient means at hand of terminating the labor at will; and for that purpose I have used, for the past nine or ten years, a simple contrivance, which consists of the blades and lock, *without the handles,* of the ordinary short forceps. Each blade terminates with a strong ring, set close to the lock, which takes the place of the handle.



The wood cut is one third the size of the instrument, which measures eight and three fourths inches in length.

The absence of the handles is a great practical advantage, by facilitating the introduction of the blades without changing the position of the woman, and also by preventing that *compression* of the head caused by pressure upon the handles, which endangers the life of the child. At the same time it gives us a sufficient extracting force, which can be increased to any extent by inserting a strong cord or strip of cloth through the rings.

The ordinary forceps is a terrible instrument in unskillful or inexperienced hands, while this simple tractor is comparatively harmless, and the ease with which it can be made to embrace the head while the woman lies either on her side or back, in the usual positions of labor, is remarkable.

I have been accustomed to carry one blade in each breast pocket, and, if their use was required, they could be warmed and oiled in an adjoining room, rolled in a napkin, and placed in the bed ready for use. The convenience of carrying them in the pocket avoids the necessity of the physician appearing with a mysterious and ominous looking package under his arm; and, in cases requiring compression of the head or the rectifying a malposition at the brim, the ordinary forceps can be procured.

On several occasions, when a woman had been attacked with puerperal convulsions, I have been able to effect delivery in a fraction of

the time it would take a messenger to fetch my case of forceps from home.

They are especially useful in breech and footling cases, where the head is delayed after the expulsion of the body, and where every moment increases the danger to the life of the child. From the fact that they have no handles, they can be made to grasp the head in those cases while it is yet at the brim, the body of the child being held well over the abdomen of the mother by an assistant, and the blades introduced by inserting the hand into the vagina.

Being a firm believer in the old maxim that "Meddlesome midwifery is bad," I deprecate the use of all interference in labor, especially in primiparous cases, unless it be absolutely required; and the only objection I can find against this little instrument is the temptation which some may feel of hastening a delivery when nature is doing her work faithfully and is fully equal to her task.

LACERATION OF THE CERVIX UTERI.

BY CLINTON CUSHING, M. D., SAN FRANCISCO.

I desire to call the attention of the Society to an affection that is quite common, but is as yet seldom recognized by the general practitioner.

I refer to the lesion known as laceration of the cervix uteri. In venturing the remark that this disease is not usually recognized by the general practitioner, I speak advisedly; for, however simple the diagnosis may seem to those who have had special training and opportunity for observation, it is not easy, by any amount of reading or description, to convey a correct impression of the facts in such a manner as to make it clearly understood when seen by those who have not had an ocular demonstration of a case.

Although it is a proposition that is not easy to prove, it is highly probable that in many labors, and especially in first labors, there is more or less laceration of the thin edge of the dilated cervix, when the head and shoulders of the child are passing through it.

These lesions, as is the case with similar lacerations of the perinæum, heal in the larger number of cases within the first ten days after delivery, if cleanliness, rest, and the observance of the recumbent posture is maintained.

But if the woman get upon her feet too soon, while the uterus is still large and heavy, and the tissues are relaxed and weak as an effect of the confinement, and union is delayed or prevented, we then have to deal with a condition requiring surgical interference for its successful management.

To Dr. Emmet, of New York, is due the credit of discovering and calling the attention of the profession to the nature and frequency of the lesion, as well as to devising and putting into practical operation a successful method of cure.

Among the most frequent causes of the accident are: the birth of an unusually large child; a rapid or a tedious labor, requiring the use of forceps; version, or craniotomy.

It is also a common result of criminal abortion, and may occur at the time of removing fibroid tumors of the uterus.

The laceration may be double or bi-lateral, extending laterally both ways from the os, and may involve the whole thickness of the cervix to the vaginal junction, or it may occur upon one side only, or it may be stellate, several fissures radiating from the os; and, lastly, we may have a laceration of the neck, leaving a trumpet-shaped cervical canal, where the canal seems to be more involved in the injury than the vaginal portion of the cervix.

Before entering upon the diagnosis of these cases, their understanding will be much facilitated by a description of the changes which take place after the receipt of the injury.

When the laceration extends laterally, and does not heal before the woman gets upon her feet, the uterus, still enlarged and heavy, settles down so that the cervix rests upon the floor of the pelvis, and the posterior lip impinges upon the posterior vaginal wall. Now the traction made upon the anterior and posterior lips of the cervix by that portion of the vaginal wall that is adherent to the neck of the uterus, and the impinging of the posterior lip upon the posterior vaginal wall, causes a gaping of the torn surfaces as the uterus settles down into the pelvis, and follows the direction of the least resistance.

That portion of the cervical mucous membrane that thus becomes everted is chafed against the vagina, the mucous follicles become enlarged and secrete a large amount of mucus, which passes away as a leucorrhœal discharge, often becoming acrid and producing an erosion of the vaginal surface of the cervix.

The mucous follicles ultimately become enlarged to such an extent that the diseased tissue is often a mass of cysts, requiring special treatment; or, if left alone, they atrophy and become obliterated.

When the laceration extends forwards into the anterior lip or backwards, quite a different state results; the gaping does not occur to the same degree, for the lateral pressure of the vaginal walls tend to keep the parts approximated; but if union does not take place, the continual irritation of the fissure causes congestion, enlargement, and cystic disease.

The most frequent seat of laceration, as shown by Dr. Emmet's statistics, is upon the left side, and this is explained by the fact that in the large majority of cases the occiput of the child's head, which is the most projecting part, presents upon the left side in its passage through the dilated os.

It is quite probable that a woman who is suffering from the disease in question, attended with profuse secretion, is not very liable to become pregnant, but that pregnancy does occur in some cases is well known.

I am satisfied that the existence of this affection is much more frequent than the profession are aware of among women who have borne children.

Out of five hundred fruitful women who applied to Dr. Emmet for relief of some variety of uterine disease, thirty-three per cent were found to have laceration of the cervix.

The symptoms of the affection are those with which nearly every professional man in general practice is familiar—pain in the back, leucorrhœal discharge, irritable bladder, pain in the region of the ovaries, inability to remain long in the standing position, pseudocyesis or false pregnancy, intractable headaches, derangement of the stomach and liver. And, in addition, I have repeatedly noticed a symptom that is so constant an accompaniment that, although I do not remember of seeing any notice of it by any writers on the subject, it seems to me to be pathognomonic, and that is, a pain under the left breast. The pain is probably a reflex neuralgia, and why it should be universal I am at a loss to determine; but that it exists in a very large proportion of cases, where there is any continued uterine or ovarian irritation, is quite certain.

The patient may suffer from some one or several of these symptoms, and, in addition, may have an amount of nervous irritation and mental suffering that is at times almost unendurable, and is much worse than real pain.

When the laceration has been a severe one, a common accompaniment is a certain amount of prolapse, and this is often attended with retroversion, the displacement being caused by the increased size and weight of the uterus, which is produced by the continued irritation at the seat of injury.

Although in a small proportion of cases the menstruation remains normal, in the larger number it is too profuse and too frequent—in some instances amounting to a serious and almost a continuous hemorrhage.

One of the most serious as well as the most common complications of this disease, whether occurring in consequence of or in connection with it, is pelvic cellulitis. I have found it existing to a greater or less degree in at least one fourth of all the cases applying to me for

relief; and I trust that the members of the Society will pardon me if I urge upon their attention the great importance of recognizing early in the case the existence of, and the proper management of, pelvic inflammation, involving the pelvic peritoneum or the areolar tissue in the cavity of the pelvis; for, if badly managed, it often eventuates in destruction of the ovaries, and renders the woman a cripple and an invalid for life.

To those who have not given the matter special attention, the diagnosis of even a well marked case of laceration of the cervix is attended with difficulty, more especially if any form of cylindrical or valvular speculum be used, for any of these instruments press upon and displace the normal relation of the parts to a considerable degree.

The reason why this lesion was not recognized long ago is, that the torn portion of the cervix, with the prolapsed and swollen mucous membrane of the cervical canal, becomes flattened against the posterior vaginal wall, and when we make an examination with the speculum we simply see a flat granulated surface, covered with a tough muco-purulent secretion difficult of removal, and when removed leaving an eroded surface, bleeding upon the slightest touch. We have in fact before us that favorite and time honored disease, the so called "*ulceration of the womb*," but which in nineteen cases out of twenty, when occurring in women who have given birth to children, is simply a laceration. To demonstrate this is exceedingly easy. Place the woman upon her side and introduce a Sims speculum; retract the perineum so that the cervix comes into view; intrust the speculum to the nurse or assistant, and take a long handled fine pointed tinaculum in each hand; catch up the mucous membrane on the outer edge of the anterior and of the posterior lips of the cervix. Now make gentle traction, and you will find that the red and granulating surface will roll in out of sight, the apparent enlargement of the neck will in a great part disappear, and with the exception of a small crease upon either side you have almost a normal looking cervix. Now in tissue as dense as the uterus an extensive erosion could not be rolled in and made to disappear by the procedure just mentioned. When the laceration exists upon one side only, the diagnosis is more difficult, but with a little care, and the application of the same principles as already described, the facts can be made out and settled.

How shall we treat a case of laceration of the cervix? First, by a careful digital examination determine if there be any point of pelvic cellulitis. If so, confine the patient to bed for a week, or longer, if

necessary, and have a large sized bed pan put under her night and morning, and a half gallon of water as hot as can be borne with comfort thrown into the vagina slowly, with a Davidson's syringe. If a point of tenderness can be found upon pressure over the abdomen, apply a blister four by five inches. If there is cystic disease puncture the cystis freely with a pistonry, and after the bleeding has ceased paint the diseased surface and the cavity of the canal freely with saturated tinct. iodine; repeat this every ten days until the cysts disappear and the surface begins to assume a healthy appearance. If the liver and bowels are torpid give a teaspoonful of carlsbad salt in a goblet of hot water every morning upon waking, and allow no food for one hour afterwards, continuing the salt for two weeks if necessary. When the tenderness in the pelvic tissues has disappeared the cysts in the cervix have been removed and the general condition been somewhat improved, the operation for the repair of the laceration should be performed. With the woman upon her side and the cervix exposed with a Sims speculum, all that portion of the diseased surface should be removed with curved scissors except a strip one third of an inch in width in the center of each side, which is to form the canal; by means of a slightly curved needle and a long handled needle holder a loop of strong silk is passed first through one flap and then the other, the loop then being used to draw into place silver wire by which the freshened surfaces of the flaps can be approximated by twisting the ends together. The wires are then cut off half an inch in length and bent over so as not to fret the vagina. The woman is lifted into bed and kept strictly in the horizontal position, a vaginal injection of warm carbolized water being used every night and morning; the bed pan being used also to relieve the bladder and bowels. The bowels should be moved by enema if necessary, every second day, and the ordinary diet allowed. The stitches can be removed on the seventh day, care being used so as not to disturb the union that has taken place. Chloroform or ether is not usually required, for the operation in not attended with much pain. I have found it necessary to use anesthetics but four times in the thirty operations I have performed in the past two years. Hemorrhage is not troublesome, if a vaginal injection of hot water is used just prior to the operation. Where the operation is properly performed, union usually takes place by the first intention, the enlargement of the uterus rapidly disappears, the leucorrhœ ceases, the backache is relieved, and the neuralgic and nervous symptoms are alleviated. With the correction of displacemets,

and the attention to the general health that all these cases demand, the results are eminently satisfactory—the cure remains permanent.

In conclusion I shall take this occasion to express my thanks to Dr. Emmet for the flood of light that he has thrown upon this heretofore unmanageable disease: for I think that none can fully appreciate its great value except he who has endeavored faithfully for months and years, by means of caustics and astringents, to cure some unfortunate woman who is dragging out a miserable existence, and at last be compelled to admit that his efforts have been useless.

A CASE OF RETINAL HEMORRHAGE, CAUSED BY MALARIAL FEVER.

REPORTED BY WM. ELLERY BRIGGS, M. D., OF SACRAMENTO.

B., 29 years of age, suffering with trachoma and asthenopia, was sent to me by my colleague, Dr. Baldwin, about the middle of last January. Dr. B. had treated the man for a short time with the usual remedies for granular lids without much improvement to vision—the patient's sight not returning enough to enable him to attend to his work as a carpenter. Upon examination I found the lids slightly rough and their edges somewhat inflamed, not sufficiently so, however, to account for the loss of vision which he presented. Testing his vision I found it $\frac{20}{50}$, and not improved with glasses. He had not been able to read ordinary newspaper print for several weeks. The following history was elicited:

Patient had enjoyed good health from childhood with the exception of occasional attacks of chills and fever up to the latter part of September, 1879, from which time he suffered for three months with intermittent fever, being most of the time confined to his bed. About the second month of his illness he attempted to read the newspaper, but was unable to distinguish any of the letters. He had had only occasional and slight pain in his eyes and did not know of any serious trouble with them until he attempted to read. When he recovered from the fever his strength and general health returned, and he was prevented from going to work from the weakness of sight only.

Upon making an opthalmoscopic examination there were seen sev-

eral grayish-white patches, with borders of darker color than the surrounding fundus. These patches were at various distances from the optic disc, along the courses of the vessels, more especially the arteries and at their bifurcations. Some of the lightest patches suggested the possibility of Bright's disease, but no trace of albumen could be found in the urine. The disc was only very slightly clouded, and its vessels were of normal size. The patches were evidently the result of retinal hemorrhages which were caused by the long continued and severe malarial fever.

The exact pathology of the disease is rather obscure. Authors differ as to its cause. Dr. Mackenzie attributing the hemorrhages to pigmentary obstruction, while Poncet thinks them due to blockading of the minute vessels by leucocytes. Some cases reported from tropical climates have gone on to neuro-retinitis, occasionally resulting in atrophy of the disc and blindness.

My patient was ordered syrup of the iodide of iron with iodide of potash internally, an astringent wash and nitrate of mercury ointment locally. He continued this treatment for three weeks. He rapidly improved, and at the expiration of this time he was able to return to his work, and said that he could again read the paper. Since his return to work I have not been able to make an examination of his eyes, and therefore have to take his statement in regard to the amount of improvement in vision.

REPORT OF SPECIAL COMMITTEE ON HOSPITAL FOR COMSUMPTIVES.

BY F. W. HATCH, M. D.

MR. PRESIDENT, AND MEMBERS OF THE STATE MEDICAL SOCIETY: The undersigned committee of the State Medical Society, appointed at the last session to endeavor to procure the passage by the Legislature of an Act for the establishment of a State Hospital for Consumptives, respectfully report:

That, after consultation with a number of the members of the Senate and Assembly lately convened, it was deemed unadvisable to press the subject in the form of a bill for the immediate establishment of such an institution, inasmuch as the sentiment of the members seemed to be unprepared for present decisive action thereon, and because of the discordant views entertained as to what would be the most suiable location. It was foreseen that upon this latter subject local interests would come into conflict, and that the safety of the measure would be jeopardized.

It was considered, therefore, the better policy to procure the passage of a concurrent resolution requesting the Governor to appoint a committee to report to the next Legislature as to the necessity of the proposed hospital, "to determine a suitable location, to investigate the probable cost, and to devise a general scheme for the construction and management of such an institution." Such a resolution was prepared, and, together with a petition representing the supposed views of the Society, and giving a few of the reasons for its action, was introduced by the Hon. Mr. Hittell, one of the Senators from San Francisco. This resolution was actively advocated by Senators Rowell and Lampson in the Senate, and by Drs. Mathews and Brusie in the Assembly, and was adopted.

The designation of three members of the State Board of Health as the Committee of Investigation was made in conformity with the wishes of several friends of the measure in the Senate, by whom it Upon mature [illegible] be one of the legitimate duties of that Board, under

that provision of the law which constitutes it an advisory Board for the Legislature in matters pertaining to the public health.

The resolution and petition are hereto appended.

Sacramento, April 17th, 1880. Respectfully submitted,

F. W. HATCH,
WASHINGTON AYER,
W. G. GIBBONS.

SENATE CONCURRENT RESOLUTION NO. 25, RELATIVE TO APPOINTMENT OF THREE MEMBERS OF STATE BOARD OF HEALTH TO CONSIDER THE SUBJECT OF A HOSPITAL FOR CONSUMPTIVES.

Resolved, the Assembly concurring, That a committee of three members of the State Board of Health, to be designated by the Governor, be and are hereby appointed to consider the subject of a State Hospital for Consumptives, to determine a suitable locality, to investigate the probable cost, to devise a general scheme for the construction and management of such an institution, and to report the results of their investigations to the Legislature at its next session.

PETITION.

To the Honorable the Legislature of the State of California:

At a regular meeting of the State Medical Society held in the City of San Francisco, April 16th, 1879, the undersigned were appointed a committee to petition the Legislature to take action looking to the establishment of a "State Hospital for Consumptives."

California, as a State, occupies a somewhat peculiar and exceptional position. It invites immigration on account of its mineral resources, its vast agricultural advantages, the adaptation of its soil and climate to the cultivation, not only of the ordinary productions of the farm, but, in many sections, of tropical and semi-tropical fruits, while, at the same time, it has held out inducements to settlement based upon sanitary advantages of which few of the other States can boast. Hence, it has become the resort not only of the young and vigorous and those seeking to engage in active industrial or business pursuits, but of the weak and dependent, of invalids seeking to avail themselves of the benefits, real or imaginary, which the climate affords. A very large porportion of this latter class are sufferers from chronic pulmonary complaints, victims of consumption, whose coming has been encouraged and hastened by the laudatory and oftentimes injudicious accounts given of the special advantages of the climate by interested land owners or enthusiastic travelers. That some derive benefit from the change, and are apparently restored to health, is true; but the misfortune is that very many whose strength is already far spent, and who are sufferers from the advanced and generally incurable stages of disease, come only to reap disappointment and to die among strangers. It is, to a large extent, from this class, unable to work, without

means or friends, that our hospitals are filled. How many such find their way to California, the public, it is believed, have but a faint conception.

In eleven hospitals reporting to the State Board of Health for 1878, there were, in a total of 1,884 patients admitted, 127 cases of consumption, or nearly 7 per cent. In San Francisco alone—1878–9—out of a total of admissions, amounting to 3,174 patients, 245 were due to consumption, or nearly 8 per cent; and John S. Hittell, Esq., in remarks upon this subject in its relation to San Francisco, has shown that, as a rule, "about three hundred consumptives, two hundred of them from other counties, are admitted annually into the County Hospital, and the expense to San Francisco of these two hundred phthisical patients from other parts of the State is perhaps $13,000 a year, enough to provide for six hundred patients of other classes, since the consumptives live longer and cost more on the average than the others."

The history of many of these invalids antecedent to admission to the hospital, we are commonly unable to trace, yet sufficient is known to warrant their classification with those to whom the remarks above made apply.

The question is, not so much as to the propriety of imposing upon a few counties the expense of caring for and supporting, often for many months, this increasing class of invalids, or of taxing a few for what, in the opinion of many citizens should, of right, be made a State charge. The argument upon which we rely is of a higher and more honorable character; it is above all considerations of dollars and cents; it looks only to the welfare of these unfortunate invalids; it is strictly a question of philanthropy—essentially humanitarian in its nature. It is to benefit the sick and suffering; to save life when this is possible; to place the invalid under such conditions of locality, climate, regimen, and general management as shall be most favorable to improvement in health, and, possibly, to ultimate recovery. Such conditions are not seldom found in our county hospitals. Observation has shown that certain sections of the State are more favorable to the consumptive than others; that certain conditions of climate, as soil, elevation, temperature, and humidity—that the adoption of certain habits and modes of living are, it might almost be said, essential to success in the treatment of consumption. Many of our county hospitals are not properly located to supply these advantages; some of the conditions just mentioned are wanting; some of them are unsuitably constructed; and not many have accommodations for the class of invalids under consideration, without doing injustice to others the proper subjects of their care. It is only in a State institution, eligibly located, suitably equipped, specially constructed, and adapted to the hygienic treatment of consumption, that the full benefit of our climate may be demonstrated. It is not impossible that such a demonstration, besides fulfilling all the obligations which the spirit of philanthrophy imposes, may, by its favorable result, be the means of attracting population, and thus amply repaying the cost expended.

Under the existing circumstances, the State is losing in sanitary reputation. Should the measure rscommended be adopted, it cannot fail to gain.

Doubtless a considerable proportion of those who now find their way into our county hospitals and die there, would, if a proper place were provided for treatment, recover their health and become useful and profitable citizens. Many, not entirely destitute, would avail themselves of the advantages afforded by such an institution; many others, not able to perform hard labor, could be profitably employed in those outdoor exercises which would form an essential part of its hygienic management; and there is no reasonable doubt that it would eventually be almost, if not quite, self-sustaining.

Being fully persuaded of the expediency of the proposition embodied in this petition, and of the benefits which would result therefrom, not only to the unfortunate invalid, but to the reputation of the State, the undersigned respectfully submit the subject to the consideration of the Legislature.

Sacramento, February, 1880.

F. W. HATCH,
W. AYER,
W. P. GIBBONS,
Committee.

SUPPLEMENTARY REPORT ON HISTOLOGY AND MICROSCOPY.*

BY J. H. WYTHE, M. D.

SAN FRANCISCO, April 20th, 1880.

W. S. THORNE, M. D., CHAIRMAN ON HISTOLOGY, CALIFORNIA STATE MEDICAL SOCIETY—DEAR SIR: I am reminded by the approach of the annual meeting of the State Medical Society of your request to me to furnish some matter of interest in histology. The routine of my professional teaching in normal and pathological histology might, naturally enough, be supposed to be sufficient to furnish abundant material to answer such a request; yet practically, the past year has not been fertile in new discoveries in this field. Yet the year has not been unprogressive. A larger number of physicians in this State than ever before are using the microscope in their practice as a means of diagnosis. Year by year the conviction extends in the profession that a practical knowledge and use of this instrument is

*Inadvertently omitted from its proper place.

indispensable. A considerable number of really good instruments—not mere toys—are now in use on this Western coast, and we are warranted to hope that they will be heard from ere long.

One matter I desire to bring through you to the notice of the microscopists in the State Society—the value of eosin staining in the preparation of pathological specimens. It is generally known that it is not sufficient to cut a thin piece from a tumor or other specimen and submit it to immediate microscopic examination. It is necessary to harden the tissue by saturation for several days in some chemical solution. Then it is usual, after making thin sections, to stain them in carmine or logwood solution, or in some of the anilin colors, so as to exhibit more satisfactorily the structural differences in the tissue. For this purpose the solution of eosin is eminently satisfactory. It is simply wonderful to observe a specimen so stained, and properly mounted, when placed under an inch (or higher) objective, and the incident light rendered oblique by the use of Wenham's paraboloid. Sections of epithelioma thus examined exhibit the infiltration of epithelial nests and cells through the rest of the tissues in a way that is perfectly marvelous. The morbid material receives the stain so differently from the normal structure that it refracts the light in a very different manner, and at once attracts the attention. Even a novice in pathology would be able to pronounce such a specimen abnormal. I do not know that I am first to call attention to eosin as a superior stain, but the quite satisfactory differentiation of the eosin-stained cells of epithelioma by the use of the paraboloid I think is quite new. I shall be glad to exhibit it to you or any of my medical friends at a suitable time.

Yours, Truly,

J. H. WYTHE, M. D.,

Prof. of Histology and Microscopy, Med. Col. of Pacific.

REPORT OF THE COMMITTEE ON MEDICAL LEGISLATION.

BY IRA E. OATMAN, M. D., OF SACRAMENTO, CHAIRMAN.

At the last annual meeting of this Society, a special committee was appointed "for the ensuing year, to consider the whole subject matter of laws regulating the practice of medicine; to whom was referred the report of Dr. Stout, on medical legislation." "The committee was also instructed to endeavor to secure the passage of a law restraining druggists, apothecaries, and chemists from prescribing or practicing medicine or surgery." In the appointing of this committee the chairman was ably supported by Drs. Henry Gibbons, Sr., of San Francisco, and G. A. Shurtleff, of Stockton. Your committee has the honor to submit the following report:

In regard to Dr. Stout's report, he recommends that the existing law be repealed; and submits a draft of a new Act to be passed, with many of the provisions of the present law, but with essential changes, viz: "That the State Board of Health, appointed by the Governor and confirmed by the Senate, shall be the only Board having power to grant licenses to practice the profession. And that said Board should have annual compensation. Also, that, in all cases of refusal or revocation of license, that the party may appeal to a tribunal composed of the Governor, Secretary of State, and the President of the Board of Regents of the University of the State of California." It is deemed inexpedient to repeal, unless the same Act shall enact a law regulating the practice of medicine in every respect superior to the law now in force. Should the State Board of Health have sole power to grant licenses to practice, the source of such Board and its licenses would be political, instead of professional, which might corrupt the whole scheme to the core. Such a provision in the law, as a portion of society and of legislators is erroneously educated, would necessitate the appointment of a mixed Board of Examiners, composed at least of regular physicians, homeopathists, and eclectics, forcing a relation at once unscientific, illegitimate, and highly impolitic. Should regular physicians refuse to serve on the Board with irregu-

lars, the appointing power would be liable to compose the Board wholly of irregular practitioners—as has been done twice in Sacramento—a condition deplorable in proportion as the whole State is greater than that devoted city. In the estimation of the enlightened nations of Europe and most of the Atlantic States, it would reflect intensely upon the civilization and scientific advancement of the great golden State of the Pacific coast. Such official action is almost wholly unknown elsewhere. The votaries of irregular practice would probably be able to defeat, at the next session, any legislation forbidding a license to practice to the graduates of the homeopathic and the eclectic "*schools.*" To the author, however, the inspiration is not Utopian that the time is not many years distant when to secure a license all irregular practitioners will be compelled to have a diploma from a *regular college* in good standing, or pass a satisfactory examination before a regular Board.

The Examining Board should be paid a reasonable compensation for its services. The right of appeal should forever be held sacred, in all cases of refusal or revocation of license, which should be incorporated in the law. Not to the Governor and Secretary of State, etc.—political officials—but to the Medical Society by which the Examining Board was appointed. As well might lawyers and law students appeal to a Medical Board; or the clergy and theological students to a Board of lawyers for redress in case of unsatisfactory credentials or examination. The *instructions* given your committee in regard to the passage of a law forbidding druggists, apothecaries, and chemists practicing medicine or surgery have been duly considered in connection with the several bills introduced into both houses of the Legislature, with the amendments proposed thereto.

One bill, by Senator Hudson, provided that the "Clerk of any Superior Court" should examine credentials and give certificates to practice. Also, that persons not graduates or licentiates should have the right to go before the Board of Censors of any legally constituted medical college or society within or near the county in which they reside for examination. The Board should have power to grant a license, with the title of "*doctor*," etc. Also, to repeal the existing law. Another proposed to exempt from the provisions of the medical law all persons who had practiced medicine in the United States Army or Navy. Another provided for licensing specialists—"a person practicing as a midwife, obstetrician, aurist, oculist, or a specialist in any branch or department [illegible] or surgery." Another, by Braun-

hart, in regard to a per centum paid by the apothecary to the physician—the use of arbitrary signs in connection therewith—and the writing of all prescriptions in the English language. Pending the disposal of this bill, the author hereof received an attested copy of resolutions which passed the San Francisco County Medical Society on the twenty-seventh day of February, as follows, viz:

"*Resolved*, That we, the San Francisco County Medical Society, representing the regular medical profession, protest against the passage of this bill, as it is detrimental to the welfare of the sick, and to the usefulness of the physician; and derogatory to the honor and respectability of the medical profession."

Also, "that members of the Senate and Assembly be requested to oppose all such legislation, etc., with three cogent reasons in support thereof, or any legislation, at present, modifying or changing the present medical law."

On the 17th of February, the Sacramento Society for Medical Medical Improvement voted unanimously, that

"WHEREAS, It is publicly announced and published that a certain physician in San Francisco has been so recreant to the ethics of his high calling as to receive from an apothecary, by previous arrangement, attested by signals or cabalistic signs, a per cent on the price of his prescriptions; therefore,

"*Resolved*, That we *earnestly deprecate the practice* and deplore the condition of him who would thus disregard his self respect and personal honor, his relations to society and to his patrons, and thereby lay himself liable under the law for violating a plain provision of the *Code of Ethics*, adopted by the American Medical Association, and in force in this Society."

The writing of prescriptions in English is so obviously absurd and impolitic as to meet with the disfavor and opposition of both the above named societies, as well as of every right minded physician.

In one of the bills a section or amendment was designed to prevent druggists and apothecaries from practicing medicine or surgery without a license. This custom swells our bills of mortality, and calls loudly for legal restraint. It is alike unprofitable to the prescriber and the patient, and generally detrimental to the health interests of the latter or even dangerous to his life.

I will spare the Society the recital of other bills and amendments for obvious reasons. In response to the almost unanimous sentiments of the profession throughout the State, so far as ascertained, your committee decided to oppose any addition to, change in, or repeal of the existing law during the late session. Croppings were visible,

however, not in the interest of the public or the profession, of changes in, and repeal of the medical law. Should any of these have been entertained by the Legislature, whose duties were unusually important and arduous, the whole subject of medical legislation would have been thrown open, and the existence of all valuable law regulating the practice of medicine might have been imperiled. The Senate contained three able medical gentlemen, *loyal to the core*, in the interests of science and the profession, and their relations to the public good. They were found to entertain precisely the views of your committee, and were all on the Senate Hospital Committee—Doctors Lampson, Rowell, and Pardee. Rowell being Chairman. To this committee the bills were referred. To their vigilance, ability, and influence we must attribute their success in the Senate in *defeating all medical legislation.* In the Assembly Doctors Mathews and Brusie were equally vigilant and successful. It is a just tribute to most of the members of both houses that they were true to the behests of science and the sanitary interests of their constituency.

Public sentiment is ripening in regard to the necessity for and the utility of such laws. "Delays" are not dangerous in this case—there seems to be "luck in leisure."

It was claimed by those who opposed a law "regulating the practicing medicine" that it legalized homeopathy and so called eclecticism, and gave them notoriety, etc. If the law made them more *notorious* than they were before, it has spent its force in that direction, and leaves them more distinctly *irregular.* The law rules out the lower order of charlatans of all pretensions, scores of whom have abandoned their impostures, or left the State. Society in future is to be encumbered only with those who are graduates of their dogmatical schools. The constitutionality of the existing medical law has been sustained by the Supreme Court of the State, and some of its provisions have been judicially enforced in San Francisco.

Efforts to enforce the law have failed in the interior. In the prosecution of a notorious charlatan in Sacramento, practicing as an oculist, without professional or legal license, the *jury* failed to find him guilty. Whether through ignorance or prejudice, the decision was contrary to plain provisions of law. The question in all prosecutions under the law is not as to the competency of the practitioner, but has he a license to practice? The utility of, and the necessity for laws regulating the practice of medicine, are appreciated slowly by the average American citizen, because the subject is comparatively

new. Progress is more rapid recently, however, as evidenced by the fact that on this coast, where the subject was first revived, few persons now oppose such laws; whilst the older States are rapidly following our wholesome example. There is no reason why we should not accept the advanced positions so long held by the most enlightened nations of Europe. Great achievements for the public good, in all ages, have been secured by uncompromising devotion, unflinching action, and untiring perseverance. Whilst the public mind is ripening on the subject it is important to enforce the present law, and any action by this society to that end would be judicious, and in order. The law should be revised; it is ambiguous; it should also be amended. Druggists and apothecaries should be restrained from practicing medicine and surgery, without a license. In case of revocation or denial of license, the party should have the right of appeal to the State Society, appointing the Examining Board, whose decision should be final. If not already demanded, time and observation will necessitate and determine other amendments to the law.

A Special Committee should be appointed and a Standing Committee should be authorized in the By-Laws, on "Medical Legislation," to which questions pertaining thereto may be referred. It should be the duty of such committee, by any lawful and honorable means, to promote the passage of any law, or amendment thereto, approved and recommended by this Society; or to defeat the passage of any medical law, or amendment, not so approved and recommended. Also, to aid the State Board of Health, when necessary, in securing the passage of judicious *sanitary* laws in regard to State and municipal Boards of Health, hospitals and asylums, prisons, sewerage and drainage, nuisances, epidemics and endemics, or any other needful legislation.

Should this Society deem it expedient to have the law revised, or amended, or both, at the next session of the Legislature, the committee could prepare the bill and submit it to the members of this Society, by a printed circular, for their approval or amendment. With the responses from the local Societies and individual members, the committee could have an approved bill ready for the next session. Under the new Constitution the next session will be one, and the second session three years from the last. Should this Society decide to ask for no legislation until the second legislative session in future, it will have two annual sessions at which to consider the reports of committees on medical legislation.

REPORT ON NECROLOGY.

TO THE MEDICAL SOCIETY OF THE STATE OF CALIFORNIA—GENTLEMEN: The appointed chairman of your committee having resigned, and the remaining associates, after written invitation, having failed to contribute, the undersigned member of the committee, in order that so important a subject may not pass by default, has the honor herewith to report.

IN MEMORIAM.

As far as can be ascertained the Society in the year from April 17th, 1879, to April 17th, 1880, has happily sustained but few losses, but those few were the loss of men of eminence. The world never loses great men without that others come to the front to fill the vacated allotment of human honors, and thus is greatness ever reproductive. Should any names be omitted the very regretable circumstance may be corrected in time for the publication of the transactions of the Society.

Of these worthies arrived at the plenitude of age, crowned with the laurels of the victor's triumph, lovely in their gentleness, grand in their achievements, we may, confiding in the world's approbation, add, as a benediction to them all, the poet's emblematic thought:

> "As Winter, sleeping on his bed of flowers,
> Wears on his face a dream of Spring."

A President of our Society has "gone aloft" to enjoy his higher sphere of human evolution:

WILLIAM FITCH CHENEY,

Of Chico; born December 30th, 1831; died October 8th, 1879.

Dr. William Fitch Cheney was born December 30th, 1831, at Richmond, New York. When a small boy his parents moved to Canandaigua, New York, at which place he was raised and received his literary training. He is a graduate of one of the schools of that place. Mrs. Broyles did not know, as his diploma, etc., were destroyed by fire.

The doctor, after graduating, chose the profession of phar-

macy, and in the Town of Canandaigua he entered upon the duties of this branch of the medicine. He was not engaged long when he met with an accident by receiving the fumes of some chemical into his eyes, that for months threatened their destruction, but they finally recovered, after which he was persuaded to study medicine. This he did in the office of his father, who was before him an honorable, intelligent, and conscientious physician. In due time the doctor attended lectures at the University Medical College of New York, and from which institution he graduated March, 1862. Soon after graduating he was appointed surgeon in the Federal army, serving in the commands of the Virginia campaign, which position he held until the war closed. After his discharge from the army he returned to Canandaigua, where he assumed the duties of his profession, and where he was soon engaged in a lucrative practice. The doctor came to California in the Spring of 1869, landing at San Francisco in March. He remained at San Francisco but a few days; went to Sacramento where he remained six weeks, at the end of this time he finally concluded to locate permanently in Chico, which he did, and where he resided during the remainder of his active life. The doctor was married October 11th, 1855, to Miss Francis Elizabeth Sheldon, of Troy, New York. He died October 8th, 1879. These details are contributed by Dr. G. W. Davis, of Chico.

Dr. Shurtleff, the Medical Director of the State Insane Asylum at Stockton, writes:

"Dr. W. Fitch Cheney was admitted into this Asylum March 9th, 1878, with that invariably fatal cerebral disease termed *general paresis*, of which he died October 8th, 1879. He was so much under the influence of the delusions peculiar to the disease—so completely and uniformly irrational and become so demented—while in the Asylum, that his life here was a blank unrelieved by a lucid moment."

Thus did the shadow of this dark, sad gloom eclipse the intellectual life of one of California's most distinguished physicians. When beyond the relief which his most devoted relatives and friends at Chico could render, his country for which he fought and tendered his life may well be proud to have given him his last home on earth. The State's representative, imbued with the highest sense of duty, always impressed with the love of his professional brothers, whose heart beats with warmest impulses, stood assiduously by his side to

replace his nearest relatives. This is our cheering consolation—the halo surrounding the dark shadow which closed upon a brilliant life.

HUGH H. TOLAND,

Of San Francisco. Born ——, 1806. Died ——.

"Dr. Hugh H. Toland was born at Gilder Creek, Newbury District, North Carolina, in the year 1806, of Scotch-Irish parentage; his father and uncles having emigrated from the Town of Newton-Stewart, in the north of Ireland. He studied medicine at the Transylvania University, Kentucky, graduating in 1828. After practicing a year or two in his native district he went to Paris to pursue his studies, devoting attention mostly to surgery, under the instruction of Roux, Depuytren, and Lisfranc. While there the epidemic of Asiatic cholera of 1832 swept over the city, and he had an opportunity of witnessing that scourge in one of its severest visitations. Returning in 1833 he again settled to practice in Newbury, when an event occurred which, while it gives an insight into his character, changed the current of what might have been a far less eventful existence. Chancing to be in the drug store of his little town a man staggered in who was choking to death from quinsy. Fresh from the precepts of Trousreau, young Toland hastily produced instruments for the purpose of performing tracheotomy at once, but the other physicians present interposed, and while they were inveighing against so radical a proceeding the patient died in the chair. Shaking the dust from his feet he removed to Columbia, South Carolina, and there engaged himself as assistant to Dr. Wells, at a salary of $2,000 a year; and soon rose to the rank of one of the foremost physicians of that State. Then came the news of the discovery of gold in California, and catching the infection Dr. Toland resigned a lucrative practice and started across the plains, bringing with him a quartz mill complete; one of the first that reached this country. Arriving here he proceeded to Calaveras County, and became the owner of what is known as the Gwynn Mine, at Mokelumne Hill. But mining did not long prove to his taste and he sold out in 1853 to settle permanently in San Francisco, where, assiduously devoting himself to his profession, he soon attained unbounded popularity and advanced to fame and fortune. He died, as he wished to die, with his faculties intact, and in the performance of his duties up to the last; yet the suddenness of it was appalling. While returning from his morning rounds, he was smitten with cerebral apoplexy, and dropped lifeless a few minutes after entering the house."

So quietly did the fates clip the thread of life! How dread the contrast with the fatality of the former decedent's long and dreary struggle!

To the *Western Lancet* we refer for fullest details, for there, as the journal which Professor Toland created and fostered; as the defender of the profession; the exponent of medical science on this coast; and the firm ally of the University of California, the mind may turn with confidence.

"Although not in the modern sense of the word a specialist, surgery was his favorite pursuit, and won for him his greatest triumphs."

The happy function of the obituary is, not to criticise, but to praise; not to condemn, but to extenuate; to elicit emulation; to offer a prestige to the future by exalting the noble deeds of the past; and then softly, with bended knee, to lay another flower at the foot of the honored catafalque. All the successful operations of Dr. Toland were doubtless worthy of his epoch, his opportunity, and his ability; but the grand achievement of the master mind and patriot heart was the college which he created with his own resources of thought, time, and means; and then donated to the State of his adoption through the University of California. This munificent "operation" transcends all others. Monuments of adamant will finally fade to dust, but his immortal stone will grow with each succeeding age, and yearly send forth recording minds to perpetuate its everlasting worth.

STEPHEN R. HARRIS,

Of San Francisco; born April . , 1801; died April 27th, 1879; age 78 years.

Extract from the record of the Society of California Pioneers—S. R. Gerry, M. D., Chairman of the Committee:

"Dr. Harris was born in New York City in April, 1801, and was consequently at the time of his death, April 27th, 1879, seventy-eight years of age. His father, Isaac Harris, was a merchant, in New York; took an active part in the war of 1812; and was lost at sea on the vessel 'Governor Tompkins.' Dr. Harris graduated at Columbia College in letters, and in medicine at the College of Physicians and Surgeons, in New York City, having studied with Dr. Alexander H. Stevens. He commenced practice in New York, which was large and lucrative, being universally beloved for his benevolence, sympathy, and kindly feelings to all, whether rich or poor. He

was for several years Health Commissioner, was appointed by Governor DeWitt Clinton, Surveyor (!) of the Ninth Artillery Regiment. He was selected by the Common Council of New York to attend in consultation and organize the Alms House Medical Department of that city; and in 1832 held the position of medical attendant of the first ward during a terrible prevalence of the Asiatic cholera, when his untiring devotion to the poor entitled him to the noble character of a public philanthropist and benefactor.

"He left New York City February 9th, 1849, for California; was detained in Panama over two months, during which time, while waiting for a San Francisco bound steamer, he was entirely engaged in attending gratuitously his sick fellow countrymen and others; six thousand of whom were on the Isthmus waiting passage. His generous conduct at this time was reported to the Masonic and Odd Fellows' Lodges, of which he was a member, who passed unanimously highly complimentary resolutions evincing their great regard for his generous conduct. He arrived on the first trip of the steamship 'Panama' to this port. On his arrival here he enjoyed a very handsome practice, and was at one time associated with the late Dr. H. M. Gray. He was elected Mayor of the City of San Francisco in the fall of 1851. He served one year. In 1853 he was elected Controller, and Coroner in 1857. He was also appointed by the Board of Health, Resident Physician of the City and County Alms House in 1873, but shortly thereafter resigned. He leaves a son, who is a merchant in the City of New York, and a brother and one daughter in San Francisco. His association with the Society of Pioneers was genial and generous as his general career, his services always being at the disposal of the Society. Practical and efficient, as well in the administration hall as in the social festivities of his boon companions, his humanitarianism in the one, like his agreeable manners in the other, secured the respect and affection of both. He was a member of the Corresponding Committee of 1854–5; President for 1855–6; Director for 1856–7; also for 1864–5, he fulfilled all these functions with ability and satisfaction to the Pioneer Society. Time fostered, age matured him, fulfilling an honorable and useful life until the wearied brain retired from duty. Surrounded with the kind and gentle care of Dr. Wilkins and his aids, and with all that assiduous and devoted friends could render, in the palatial Asylum of Napa, the vital spark was extinguished, and he rests from his labors in quiet sleep."

The pretensions of Dr. Harris in the field of surgery were modest, but his medical skill, attested and welcomed by thousands, but few would presume to question. In a word, his nature was of the kindliest, gentlest character. His ever

ready smile was a beam of sunlight; by no means passionless, his forgiving nature suppressed the lightning of anger; his frown, fraught with peacefulness, echoed no thunder sound; but no friend of his will forget his persuasive smile—that charming smile, the luminous torch of the wise man, which, like the star of Bethlehem, guides him to all the heaven, to which all men aspire.

S. B. BRINKERHOFF,

Of Santa Barbara; born , 1823; died March 26th, 1879. Dr. Brinkerhoff, fifty-six years of age, and twenty-eight years resident of Santa Barbara, died of apoplexy very suddenly, at his residence. The statement of his demise is, that from the plenitude of health and the fullness of life's activity, revered in public, beloved at home, he passed with one quick bound from his existence, with scarce a warning, into the eternity of the future. Here, might much be said; but a pure life, ever in the front in the conflict of disease, being always prepared, is hourly forearmed.

Dr. Brinkerhoff was born in Auburn, New York; was a graduate of the Buffalo Medical University. He first located in Mansfield, winning for himself a place in the foremost ranks of medical associates. He was a resident of Santa Barbara for over twenty-eight years, and was one of the earliest of those who carried here the American idea of civilization and prosperity. He was a man of great public spirit and energy, just the character needed in a young community. He was identified with almost every enterprise for the benefit and improvement of the county and city. Hardly a public work or institution can be pointed to of which he was not one of the promoters.

The day was bleak and cold when his obsequies were performed, but nevertheless the people came into town from miles around to join the sorrowful procession. Early in the morning flags were raised at half mast on the Odd Fellows' building, on the Arlington and Morris House, and on Cook's building, and remained flying during the day. Trinity Church, where the sad rites were performed, was exquisitely decorated with evergreens and flowers, while the casket was bestrewed with floral offerings from nearly every garden in the city. The church was crowded at an early hour, and at half past two

o'clock, when the procession arrived, not even a standing place could be found, and hundreds stood around on the outside. The casket was carried into the church and deposited in front of the chancel by the following pall bearers: Col. W. W. Hollister, H. H. More, Judge Huse, D. W. Thompson, Dr. C. M. Bates, F. W. Frost, and Captain Greenwell. The beautiful burial service of the Episcopal Church was read with great impressiveness by the Rev. Mr. Trew, after which the choir sang "Nearer my God to Thee." The large audience then filed out and the remains were followed to the cemetery by the largest procession Santa Barbara has ever seen. The line of carriages was fully half a mile long, and the procession contained nearly the whole population of the city. The services at the grave were very brief, and as the earth closed over all that was mortal of the kind old physician, there was many an eye that grew moist, and many a sigh of regret at his departure.

Refer to the Santa Barbara paper of March 26th, freely quoted from.

SAMUEL LANGDON,

Of Stockton; born , 1822; died , 1879–80.

Of Dr. Langdon we quote the beautiful expression of his fellow friend and coequal worker, Dr. Todd of Stockton:

"Samuel Langdon was born in Wilmington, North Carolina, in 1822, and received his medical education at the University of New York, graduating at that institution in 1843. He came to Stockton in 1849, and has continued to practice his profession here from that time until within a few days of his death. He was a man of great physical endurance, and of large professional experience; of close observation at the bedside, together with an acuteness of perception and sound judgment, which made him a skillful and safe practitioner. He enjoyed, in an eminent degree, the confidence of this community, which was exhibited by the persistence with which his many friends sought his counsels through years of declining health until almost the very hour of his death. In a profession famed for its abounding charity, he was pre-eminently the friend of the poor, a virtue that was and always will be abused by many who are not properly its fit objects."

Of the worthy representatives of California's pioneers in the medical professsion in this epoch of California's life, *four members* of this Society, men standing eminently "in the front," are recorded on the "retired list" from all earthly care.

Thirty years of uninterrupted labor in one field of life's exhaustive energy! If fidelity ever won an honor; if ability ever earned a laurel; if sweet charity ever weaves a blessing; if learning, truth, and integrity are values worthier than massed up millions; if these are virtues which alone the possessor may wear away with him to the higher sphere of life beyond the grave, then are these the noble passports to that "bourne whence no traveler returns" of our lost friend and brother, Samuel Langdon.

We have been informed of the names of Dr. MARTIN BAKER, of Visalia; Dr. WILLIAM SHARP, of Jackson; too late to to obtain details. Very respectfully,

A. B. STOUT.

Dr. I. E. Oatman, Treasurer, in account with California State Medical Society, Cr.

1879.			1879.		
April 16.....	To balance brought forward.....	$ 98 00	April 30	By cash per Dr. Tyrrell, Voucher No. 1.....	$590 55
April 30.....	To cash per Dr. Tyrrell—dues of members.....	720 00	July 23.....	By cash per Dr. Tyrrell, Voucher No. 2.....	34 02
July 23.....	To cash per Dr. Tyrrell—dues of members.....	135 00	July 23.....	By cash paid Crocker & Co., per Dr. Tyrrell, transactions	100 00
1880.			Aug. 1.....	By cash paid Crocker & Co. on transactions...	220 00
April 14.....	To cash per Dr. Tyrrell—dues of members.....	100 00	1880.		
April 14.....	To cash per Dr. Tyrrell—transactions.....	5 00			
April 14.....	To cash per R. B. Cole.....	19 00	April 14.....	By cash per Dr. Tyrrell, Voucher No. 3.....	78 40
		$1,077 00			$1,022 97
			April 19.....	By Balance.....	54 03
April 16,1880	To balance.....	$54 03			
					$1,077 00
Due	H. S. Crocker & Co., $106 48, see Voucher No. 3.				

REPORT OF STATE BOARD OF MEDICAL EXAMINERS.

Gentlemen of the Medical Society of the State of California:

I herewith submit the report of the Treasurer of the Board of Medical Examiners:

Received of C. M. Bates, former Treasurer	$84 00	Disbursed as per vouchers	$140 00
Received of present Secretary	379 70	On hand	323 70
Total	$463 70	Total	$463 70

Respectfully submitted,

WASHINGTON AYER,
Treasurer of Board of Medical Examiners.

San Francisco, April 21st, 1880.

To the President and Members of the Medical Society of the State of California:

Your Board of Examiners desire to present, through their Secretary, the following report:

Since the last annual meeting of this Socity the Board has held 19 meetings; the number of duplicate certificates issued to parties who made affidavit to loss of the original, 6; number of certificates issued to correct clerical error in previous issue, 1; number of original certificates issued, 110; whole number of certificates issued, 117. Number of certificates revoked for unprofessional conduct, in accordance with the provisions of Section four of the amended medical law, 1; number of certificates refused in consequence of unprofessional conduct, in accordance with the provisions of the same section, 1; number of applications refused in consequence of insufficient credentials, in accordance with the provisions of Sections one and three of the amended medical law, 3; number of trials held to decide upon charges of unprofessional conduct, in accordance with the provisions of Section four of the amended laws, 2.

RECEIPTS AND DISBURSEMENTS.

Received from previous Secretary.	$77 00	Returned to previous applicant on withdrawal of application	$5 00
Received from 6 applicants for duplicate certificates	6 00	Paid out to detectives and witnesses in prosecuting illegal practitioner	48 00
Received from 110 applicants for original certificates	550 00	Paid to attorneys Taylor and Haight, as per bill	80 00
Received for 1 original certificate previously issued, and advance charges	5 50	Paid to Secretary for services, per order of Board	100 00
Received as a fine for illegal application, in accordance with the provisions of Section three of amended law	5 00	Paid over to the Treasurer, as per vouchers	279 70
		Paid out for expenses of office, blank certificates, stationery, and sundries, as per vouchers	130 80
Total amount of money rec'd	$643 50	Total amount paid out	$643 50

The Board has been laboring under the same incubus, during the early part of the year, which retarded and weighed down the actions of its predecessor, viz: the contest over the constitutionality of the Act creating the Board; and when the Court had rendered its second decision confirming its constitutionality the Legislature was in session, and a strenuous effort was being made by the enemies of the law to repeal it, or to practically nullify its provisions by unfriendly legislation. While we recognized the imperfections of the law, we deemed it an unpropitious moment to attempt any amendments, and therefore used our influence to maintain it as it stands, hoping that, when a little more time and experience shall have more fully demonstrated its faults and shortcomings, the "first law of nature" will induce some intelligent future Legislature to so amend it that its operations may be more satisfactory both to the public and to the profession.

This Board has faithfully endeavored to perform its *duties under the law as we find it.* That no grevious error should be perpetrated, our attorney was consulted on all important occasions.

Respectfully submitted.

R. H. PLUMMER, Secretary.

CONSTITUTION AND BY-LAWS OF THE SOCIETY.

ARTICLE I.

TITLE OF THE SOCIETY.

SECTION 1. This institution shall be styled "THE MEDICAL SOCIETY OF THE STATE OF CALIFORNIA."

ARTICLE II.

MEMBERS.

SECTION 1. The members of this Society shall consist of delegates from permanently organized local medical societies, ordinary and honorary members, who shall collectively represent and have cognizance of the common interests of the medical profession in the State of California.

SEC. 2. Each delegate from a local society shall hold his appointment for one year, and until another is appointed to succeed him, and shall participate in all the business and affairs of the Society on paying the usual dues of five dollars.

SEC. 3. Each local Society shall have the privilege of sending to this Society one delegate for every five of its regular resident members, and one for every additional fraction of more than one half that number of its members.

SEC. 4. Qualifications for membership shall consist of a good primary and medical education, attested by a diploma from some known medical school of good repute, and a good professional and moral standing in the community in which such candidate may reside. A license from the Board of Examiners of this Society shall also be required of every candidate.

Ordinary members—Every physician who shall properly satisfy the Board of Censors by the exhibition of his diploma that he possesses the necessary qualifications as prescribed, may become an ordinary member of this Society, and all those who may thereafter serve in the capacity of delegates to the Society, together with such other persons as may receive the appointment by unanimous vote, shall thereby become permanent members; *provided*, that no physician shall be considered eligible to membership who may reside within any location where there is a local medical society, and who has failed to become a member thereof, unless there be some special reason assigned for his election; and no voucher or vouchers of any member or members shall be taken as satisfying evidence of any applicant's qualifycation for membership.

SEC. 5. Honorary members shall consist of such distinguished

savants and others as may be deemed worthy of the compliment. They shall receive their appointment by a vote of the Society, and upon a motion of some member present.

SEC. 6. Each individual, prior to taking his seat as a member of the Society, must sign the Constitution, inscribing his name and address in full, specifying in what capacity he attends, and if a delegate, the local society which he represents. Every member shall be entitled to the diploma of the Society, to which shall be attached the seal* of the Society, and the signature of the President and Permanent Secretary.

SEC. 7. The seal of this Society shall always be kept by the Permanent Secretary.

ARTICLE III.

OFFICERS.

SECTION 1. The officers of the Society shall be President, four Vice Presidents, one Permanent and two Assistant Secretaries, a Treasurer, and a Board of Censors of five members. These officers shall be nominated by a committee of one member from each county represented, on the morning of the second day of the meeting, and be elected by ballot, except Permanent Secretary. Each officer shall hold his appointment for one year, and until another is elected to succeed him.

SEC. 2. The President shall preside at the meeting, preserve order, give a casting vote in case of a tie, and perform all other duties that custom and parliamentary usage may require. He shall organize and open the meeting next succeeding his election, by an address on some subject connected with medicine, or with the interests of the Society. He may also fill by appointment all vacancies that may occur from death or other causes.

SEC. 3. The Vice Presidents, when called upon, shall assist the President in the performance of his duties, and during his absence, or at the request of the President, one of them shall officiate in his place.

SEC. 4. The Permanent Secretary shall reside in Sacramento, and shall authenticate the proceedings; give due notice of time of next meeting; shall serve as a member of Committee on Publication; shall preserve the archives and unpublished transactions of the Society; shall hold correspondence with other permanently organized societies, both domestic and foreign, and see that all the published transactions are promptly distributed to the members entitled to receive them. This officer shall not be subject to annual election, and shall not be removed except for cause shown.

SEC. 5. The Assistant Secretaries shall record the minutes, notify

*The seal that has been adopted shows enough of the beautiful design of the seal of the State to declare the common origin of the Medical Society and of the State of California, while the cock that was wont to be sacrificed to Esculapius, representing "vigilance," is crowing out 1870, the year of reorganization; and the serpent, emblematic of "sagacity and long life," lies entwined around the doctor's staff at his feet. Thus Vigilance and Sagacity typify the qualities a physician should possess under the direction of Minerva.

members of committees of their appointment, and of the duties assigned them; and, in the absence of the Permanent Secretary, one of them shall perform his duties.

SEC. 6. The Treasurer shall have immediate charge and management of the funds as a property of the Society, and hold them subject to the disposal of the Society. At each annual meeting he shall present a report, setting forth the amount of moneys received, as well as the amount disbursed, and for what purpose.

SEC. 7. The Board of Censors shall examine the credentials of all candidates for admission to the Society, and if such credentials are found to conform with the requirements, as enacted in Article II of this Constitution, the Board of Censors shall recommend said applicants to the Society as suitable candidates for election.

ARTICLE IV.

MEETINGS.

SECTION 1. The regular meetings of the Society shall be held annually, and commence on the third Wednesday of April.

ARTICLE V.

STANDING COMMITTEES.

SECTION 1. The following standing committees, each composed of five members, of whom the first named is Chairman, shall be nominated at every annual meeting by the President elect, for the purpose of preparing and arranging business for each ensuing year, and for carrying into effect the orders of the Society not otherwise assigned, namely:

On Practical Medicine and Medical Literature.
On Surgery.
On Obstetrics.
On Medical Topography, Meteorology, Endemics, and Epidemics.
On Indigenous Botany and the Domestic Adulteration of Drugs.
On Public Hygiene and State Medicine.
On Histology and Microscopy.
On Mental Diseases and Medical Jurisprudence.
On Medical Education.
On Publication.
Of Arrangements.
On Prize Essays.

SEC. 2 The Committee on Practical Medicine and Medical Literature shall prepare an annual report on the more important improvements effected in this State in the management of individual diseases; the improvements and discoveries which may have been made in Anatomy, Physiology, General Pathology, Therapeutics, and Medical Jurisprudence.

SEC. 3. The Committee on Surgery shall prepare an annual report on all the important improvements in the management of surgical diseases effected in the State during the year, and as far as

can be ascertained, the number of capital operations performed, with their results.

SEC. 4. The Committee on Obstetrics shall prepare an annual report on the important improvements in the obstetrical art, and in the management of diseases peculiar to women and children, effected in the State during the year, together with such remarks touching these subjects as they may think proper.

SEC. 5. The Committee on Medical Topography, Meteorology, Endemics, and Epidemics, shall prepare an annual report on the peculiarity of the soil and climate of the different sections of the State, with the diseases to which they are subject; also the endemics and epidemics which have prevailed throughout the State during the year.

SEC. 6. The Committee on Indigenous Botany and the Domestic Adulteration of Drugs shall prepare an annual report on the indigenous medical botany of the State of California, paying particular attention to such plants as are found to possess valuable medicinal qualities, and are not accurately described in standard works, and the localities where they are found. Also, to report on the quality of drugs brought to our market, with the view to correct the evils arising from the extensive introduction and sale of spurious and sophisticated articles.

SEC. 7. The Committee on Public Hygiene and State Medicine shall prepare an annual report on all subjects germane to this important branch of medical science.

SEC. 8. The Committee on Histology and Microscopy shall report and demonstrate such valuable facts and discoveries, annually, bearing directly or indirectly on medicine and surgery, as they may think proper.

SEC. 9. Committee on Mental Diseases and Medical Jurisprudence. This eommittee shall report on all psychological questions, and on such matters appertaining to medical jurisprudence as in their judgment may be deemed advisable.

SEC. 10. The Committee on Medical Education shall prepare annual reports on the general condition of medical education in the State of California, as compared with the state of medical education in other States of the Union, noticing the several medical institutions of the State, their course of instruction, the practical requirements for graduating, the modes of examination for conferring degrees, and the reputed number of pupils and graduates at each during the year; together with such other matters as they may deem worthy of consideration in reference to medical education and the reputable standing of the profession.

SEC. 11. The Committee on Publication—of which the Permanent Secretary must constitute a part—shall have charge of preparing for the press, and of publishing and distributing, such of the proceedings, transactions, and memoirs of the Society, as may be deemed worthy to be published.

SEC. 12. The Committee of Arrangements shall be composed

of members residing in the place at which the Society is to hold its annual meeting, and shall be required to provide suitable accommodations for the meeting, to report on the credentials for membership, and to receive and announce all voluntary communications made to the Society.

SEC. 13. In order to afford the Committee on Medical Topography, Meteorology, Endemics and Epidemics, and on Indigenous Botany and the Domestic Adulteration of Drugs, material for their several annual reports, it shall be the duty of the several auxiliary societies in the State to transmit to the Chairman of these respective committees, on or before the first day of March of each year, a special report embracing such information touching their particular localities as may enable said committees to make full reports on all subjects committed to them.

SEC. 14. The standing committees shall constitute sections, after the manner of the American Medical Association, to whom all papers shall be referred upon the first day of the session, and who shall report to the Society those papers that seem of sufficient interest for reference to the Committee on Publication; also those that seem of sufficient importance to be read before the Society, by title, abstract or *in extenso*, upon the second day of the meeting.

ARTICLE VI.

VOLUNTARY CONTRIBUTIONS.

SECTION 1. After the reading and discussion of the annual reports, or at any other period during the meeting of the Society, by the vote of two thirds of the members present, it shall be the privilege of any member to present to the consideration of the Society, either orally or in writing, communications on medical subjects, reports of interesting cases, or such other matters as may be deemed of interest to the profession, which communications may on motion be referred to the Committee on Publication, and if deemed by them worthy of preservation, shall appear among the proceedings.

ARTICLE VII.

FUNDS AND APPROPRIATIONS.

SECTION. 1. The funds of this Society shall be raised by individual voluntary contributions, by the sale of its publications, and by an annual tax of five dollars on each member of the Society, on the payment of which he shall be entitled to a copy of all the publications for the year.

SEC. 2. The funds thus raised may be appropriated for defraying the expenses of the annual meetings; for publishing the proceedings, memoirs, and transactions of the Society; for enabling the standing committees to fulfill their respective duties, conduct their correspondence, and procure the material for the completion of their stated annual reports; for the encouragement of scientific investiga-

tions by prizes and awards of merit, and for such other purposes as the Society may from time to time direct.

SEC. 3. Any member who shall fail to pay his annual dues for two successive years, unless absent from the State, or for other reasonable causes, shall be dropped from the roll of members, after having been notified by the Permanent Secretary of the forfeiture of such membership; and no member so dropped shall be reinstated in his membership until he shall have paid all arrears due by him.

ARTICLE VIII.

DELEGATES TO THE NATIONAL MEDICAL ASSOCIATION.

SECTION 1. The Society shall annually appoint, to represent it in the American Medical Association, one delegate for every ten members, and one for every additional fraction of more than one half this number whose certificates of appointment shall be signed and duly authenticated by the President and Secretary.

ARTICLE IX.

CODE OF ETHICS.

SECTION 1. The Code of Medical Ethics recommended by the National Medical Association, held in Philadelphia in May, 1847, having been approved and adopted by this Society, shall have the full force and effect of any Article of this Constitution.

ARTICLE X.

DISCIPLINE OF MEMBERS.

SECTION 1. Any violation of the provisions of the Constitution or of the Code of Ethics adopted by this Society, shall be referred to the Board of Censors for adjudication, from whose decision an appeal may be taken to the Society. Such violation being reported by the Board of Censors to the Society, and established to the satisfaction of a majority of the members, the individual or individuals thus offending shall be excommunicated, and deprived of all the privileges of membership.

SEC. 2. The Society shall have jurisdiction in all cases of appeals taken from auxiliary societies, in which event their decision shall be final.

ARTICLE XI.

AMENDMENTS AND ALTERATIONS.

SECTION 1. No amendment or alteration shall be made in any of the Articles of this Constitution, except at the annual meeting next subsequent to that at which such alteration or amendment may have been proposed, and then only by the concurrence of two thirds of the members in attendance.

ORDER OF BUSINESS.

The following order of business is presented as a by-law of the Society, which shall at all times be subject to a vote of a majority of all the members in attendance, and, except temporarily suspended, shall be as follows:

I. Organization of the meeting.
II. Report of the Committee of Arragements on the credentials of members after the latter have registered their names and addresses, etc.
III. The calling of the roll.
IV. The reception of members not present at the opening of the meeting, and the reading of notes from absentees.
V. Reception of members by invitation.
VI. The reading and consideration of the stated annual reports from the standing committees.
VII. Reading and discussion of voluntary contributions.
VIII. The election of officers and place of annual meeting, and appointments by the President elect to fill the standing committees.
IX. Resolutions introducing new business, and instructions to the standing committees.
X. Unfinished and miscellaneous business.
XI. Reading of the minutes of the session about to conclude.
XII. Adjournment.

AMENDMENTS TO CONSTITUTION.

ARTICLE II, SECTION 4. Provided, that no physician be elected a member of this Society from a county having a local society, unless he be a member of the same, or unless there be some special reason for his election.—[1872, October 10th.]

ARTICLE IV, SECTION 1. Amended by striking out in the second line the words "second Wednesday in October," and inserting "second Wednesday in April, as the time for holding the annual meeting of the Society.

ARTICLE III, SECTION 4. Making it obligatory upon the Permanent Secretary to reside in Sacramento, striking out that clause requiring the meetings of the Society to be held in Sacramento, leaving the choice of such place with each session of the Association.—[1873, April 10th.]

ARTICLE IV, SECTION 1. Changing the time of meeting to the third Wednesday in April.—[1873, April 10th.]

ARTICLE VII, SECTION 3. Any member who shall fail to pay his annual dues for two consecutive years, unless absent from the State, or for other reasonable causes, shall be dropped from the roll of members, after having been notified by the Permanent Secretary of the forfeiture of his membership; and no member so dropped shall be reinstated in his membership until he shall have paid arrears due by him.—[1874, April 21st.]

ARTICLE V, SECTION 14. That the standing committees shall constitute sections, after the manner of the American Medical Association, to whom all papers shall be referred upon the first day of the session, and who shall report to the Society those papers that seem of sufficient interest for reference to the Committee on Publication; also those that seem of sufficient importance to be read before the Society, by title, abstract, or *in extenso*, upon the second day of meeting.—[1874, April 21st.]

ARTICLE II, SECTION 4. After the word "Censors," add "by the exhibition of his diploma;" and after the word "election," add "and no voucher or vouchers of any member or members shall be taken as satisfactory evidence of any applicant's qualification for membership."—[1875, April 19th.]

ARTICLE II, SECTION 4. "Shall be entitled to permanent membership" to read "shall thereby become permanent members."—[1875, April 19th.]

ARTICLE III, SECTION 1. After the word "ballot" add "except Permanent Secretary."—[1877, April 18th.]

ARTICLE III, SECTION 4, After "them" add "this officer shall

not be subject to annual election, and shall not be removed except for cause shown."—[1877, April 18th.]

ARTICLE II, SECTION 6. After the word "the" be added "signature of the President and Permanent Secretary."—[1878, April 18th.]

ARTICLE II, SECTION 4. A license from the Board of Examiners of this Society shall also be required of every candidate.—[1878, April 18th.]

RESOLUTIONS RELATING TO THE GOVERNMENT OF THE SOCIETY.

Resolved, That a committee of three be appointed by the Chair, to secure the passage of an amendment to the laws organizing the State Board of Health, to enforce the registration of deaths, births, etc., to enable the Board of Health to secure more complete statistics in relation thereto.—[1870, Oct. 20th.]

Resolved, That a committee be appointed by the Chair, to present to this Society, at its next meeting, any amendment which may be advisable, in their judgment, to the present law regulating the registration of births and deaths.—[1870, Oct 20th.]

Resolved, That the fact of a doctor of medicine being engaged in the manufacture and sale of any secret or patent medicine, or in any way promoting the use of them, shall render him ineligible as a member of this Society.—[1871, Oct 12th.]

Resolved, As a sense of this Society, that the subject of medical ethics should receive a larger share of attention in medical universities and colleges of the country, to the end that the true principles inculcated therein may be more thoroughly impressed upon the minds of the students, and, in consequence, more faithfully and scrupulously observed by them in their subsequent professional career.—[1871, Oct. 12th.]

Resolved, That the Board of Censors shall recommend no candidate for membership until he shall have presented his diploma or other evidence of being a graduate of a recognized school, and of good standing; and that no voucher of a single member shall be considered sufficient evidence of his qualifications.—[1871, Oct. 12th.]

The Secretary was instructed to notify the committees of their appointment as soon as made by the President; also, that the Chairman of each committee be requested to notify each member of said committee of his appointment.—[1872, Oct. 10th.]

Resolved, That the Committee on revision of the Constitution and By-Laws be instructed to introduce into the code a law requiring the reading of the minutes of each session at the conclusion of the same.—[1873, Oct. 10th.]

Resolved, That a permanent Secretary be elected for the Society, who shall be paid for his services, and that an additional Assistant Secretary shall be appointed each year by the President at the place of the future meeting. The salary of the Permanent Secretary to be fixed by the vote of the Society.—[1873, Oct. 10th.]

Resolved, That the Permanent Secretary be allowed a salary of one hundred dollars.—[1874, April 10th.]

Resolved, That the Chairman of the various standing committees hereafter present a synopsis of their several reports; the reading of which will be considered as fulfilling the provisions of the Constitution.—[1874, April 10th.]

Resolved, That the Publishing Committee be instructed to make out an alphabetical list of the members, together with their places of residence, for the Society, and have the same published in the next volume of transactions.—[1874, April 10th.]

Resolved, That the President and Secretary be authorized to issue credentials to any member of this Society who desires to attend the meeting of the American Medical Association as a delegate.—[1874, April 10th.]

Resolved, That the Secretary be authorized to issue credentials to any member of the Society desirous of visiting any foreign medical association—[1874, April 10th.]

Resolved, That this Society recognize the diplomas of the Toland College, and places its graduates who are now members of this Society, or who may hereafter apply for membership, on the same footing as the graduates of other regular schools.—[1875, April 21st.]

Resolved, That the original founders of the Society are permanent members, and liable to yearly dues, and that all members once admitted are liable to yearly dues, whether simply as a delegate or otherwise.—[1875, April 21st.]

Resolved, That a committee of five members be appointed for the purpose of promoting the organization of county or district societies.—[1875, April 21st.]

Resolved, That the San Francisco Medical Benevolent Society be and the same is hereby recognized as a local medical society within the meaning of the Constitution of the State Medical Society, which requires its members to belong to a local medical society, when there is one where they reside.—[1875, April 19th.]

On motion it was ordered that the actual expenses incurred by the Board of Examiners be paid by the Treasurer of the Society.—[1875, April 19th.]

Resolved, That this Society indorse the views of the President as to the importance of the creation of local Boards of Health in every incorporated city and town in the State; and recommend the invocation of legislative aid in the promotion of so desirable an object.—[1877, April 18th.]

Resolved, That the practice of making annual contracts with individuals or societies for medical attendance is not only derogatory to the dignity of the profession, but is an actual violation of the code of medical ethics adopted by the American Medical Association, as well as the code adopted by this Society.—[1877, April 18th.]

Resolved further, That the name of any member of this association who shall hereafter make or renew a contract for annual medical attendance upon individuals or societies, shall be stricken from the roll of the same.—[1877, April 18th.]

It was ordered that the actual expenses incurred by the Board of Examiners of this Society be paid by the Treasurer of the Society; who shall also pay such expenses of litigation as may be deemed necessary and expedient in order to carry out the objects of the law under which they were elected.—[1877, April 18th.]

Resolved, That the Publication Committee be requested to insert in the proceedings, in a collective form, all the changes in the Constitution, and the resolutions relating to the government of the Society, which have been adopted from time to time.—[1878, April 17th.]

Resolved, That the several local medical societies and Boards of Health throughout the State be requested to urge their respective city, county, and town authorities to establish ordinances or laws requiring all practitioners of medicine within the limits of their respective jurisdictions to report in writing to their respective Boards of Health, all cases of the more dangerous epidemic diseases coming under their professional observation.—[1878, April 17th.]

Resolved, That the Secretary of the Board of Examiners be instructed to communicate with the local medical societies, and urge that they prosecute violations of the medical law, and that they report progress from time to time to the Board of Examiners.—[1878, April 17th.]

Resolved, That this society appeal to all ministers of the gospel throughout the State, and urge them to use their influence in all proper and available ways, to discourage the inhuman, degrading, and extensively prevailing practice of feticide.—[1878, April 17th.]

Resolved, Whereas, in consequence of the silence of the profession, the regular practice of medicine is very generally characterized as *allopathy* by the secular press, by medical dogmatists and sectarians, and by the public at large, and the epithet, *allopath*, applied to its individual members through ignorance to a great extent that the name was introduced by Hahnemann to give distinction to his homeopathic dogmas; therefore,

Resolved, That we, the Medical Society of the State of California, in unison with the regular profession throughout the world, do hereby utterly repudiate the name of *allopath*, as applied to ourselves, or *allopathy*, as applied to our practice: the regular profession of medicine, knowing no sectarianism, in medicine, practicing no exclusive

dogma, or in any way restricting its legitimate members in the treatment of their patients, but, on the contrary, giving them the fullest latitude to use any remedy or any means whereby the welfare of the sick may be promoted, their health insured, or their lives prolonged.—[1879, April 16th.]

Resolved, That the Medical Society of the State of California, respectfully request the American Medical Association, at its next annual meeting, to memorialize the Congress of the United States to pass a law requiring the proprietors of all patent or proprietary medicines, offered for sale in the United States of America, on and after July 1st, 1880, to accompany each bottle, box, and package of such medicines with a printed label or circular, plainly stating all the medicinal and other substances contained therein, and their relative proportions; or to adopt some form of legislation that will accomplish the purpose herein contemplated.—[1879, April 17th.]

STANDING COMMITTEES

OF THE STATE MEDICAL SOCIETY FOR 1880–81.

ON PRACTICAL MEDICINE—W. F. McNutt, Chairman; W. Ayer, C. G. Kenyon, San Francisco; C. L. Bard, Ventura; W. A. Russell, Visalia.

ON SURGERY—P. B. McD. Miller, Oroville, Chairman; R. A. McLean, E. B. Robertson, San Francisco; C. A. Ruggles, Stockton; C. K. Farley, Gilroy.

ON OBSTETRICS—H. Gibbons, Jr., Chairman, San Francisco; I. E. Oatman, Sacramento; B. Cory, San Jose; E. A. Stockton, Stockton; C. Cushing, San Francisco.

ON MEDICAL TOPOGRAPHY, ENDEMICS, AND EPIDEMICS—M. M. Chipman, San Francisco, Chairman; G. C. Smith, Cloverdale; Alemby Jump, Downieville; M. B. Pond, Napa; J. H. Carothers, Martinez.

ON INDIGENOUS BOTANY AND ADULTERATION OF DRUGS—Wm. P. Gibbons, Alameda, Chairman; F. Delmont, Ventura; M. Pietrzycki, Rio Vista; Thomas Ross, Woodland; H. W. Rucker, Merced.

ON MEDICAL EDUCATION—H. Worthington, Los Angeles, Chairman; Benjamin Shurtleff, Napa; T. A. Snider, Sacramento; J. T. Wells, San Francisco; E. S. Carr, Oakland.

ON PUBLIC HYGIENE AND STATE MEDICINE—F. W. Hatch, Sr., Sacramento, Chairman; J. F. Montgomery, Sacramento; M. S. McMahan, San Jose; H. A. Dubois, San Rafael; Robert Caldwell, San Jose.

ON MENTAL DISEASE AND MEDICAL JURISPRUDENCE—G. A. Shurtleff, Stockton, Chairman; E. T. Wilkins, F. L. Dozier, Napa; J. M. Briceland, Shasta; I. S. Titus, San Francisco.

ON HISTOLOGY AND MICROSCOPY—J. H. Wythe, Oakland, Chairman; C. N. Ellinwood, M. C. O'Toole, San Francisco; E. H. Woolsey, Oakland; F. W. Hatch, Jr., Napa.

ON PRIZE ESSAYS—H. S. Orme, Los Angeles, Chairman; A. B. Caldwell, Marysville; H. Gibbons, Sr., C. M. Bates, San Francisco; W. S. Thorne, San Jose.

ON PUBLICATION—G. G. Tyrrell, Sacramento, Chairman; G. L. Simmons, W. R. Cluness, W. A. Briggs, F. W. Hatch, Sacramento.

ON GYNECOLOGY—R. Beverly Cole, San Francisco, Chairman; H. M. Fiske, Geo. Chismore, San Francisco; St. G. L. Hopkins, Oakland; W. A. Washington, Merced.

ON OPHTHALMOLOGY—A. M. Wilder, San Francisco, Chairman; E. A. Matson, Sonora; A. Barkan, N. J. Martinache, San Francisco; W. E. Briggs, Sacramento.

ON DISEASES OF WOMEN AND CHILDREN—C. Blake Brown, San Francisco, Chairman; O. O. Burgess, C. Annette Buckel, W. H. Mays, Kate N. Post, San Francisco.

ON NECROLOGY—J. B. Cox, San Jose, Chairman; A. B. Stout, B. R. Swan, B. D. Dean, San Francisco; E. H. Pardee, Oakland.

ON ARRANGEMENTS—C. G. Kenyon, Chairman; R. H. Plummer, T. B. DeWitt, J. F. Sullivan, C. P. Chesley.

CATALOGUE OF OFFICERS AND MEMBERS

OF THE

Medical Society of the State of California.

PRESIDENTS AND VICE PRESIDENTS OF THE STATE MEDICAL SOCIETY.

1856.

SACRAMENTO.

President,

B. F. Keene ..... El Dorado.

Vice Presidents,

E. S. Cooper ..... San Francisco.
S. Langdon ..... San Joaquin.
D. W. C. Rice ..... Yuba.
R. K. Reid ..... San Joaquin.
F. W. Hatch ..... Sacramento.

1857.

SACRAMENTO.

President,

H. Gibbons ..... San Francisco.

Vice Presidents,

R. H. McDaniels ..... Yuba.
O. Harvey ..... El Dorado.
A. J. Spencer ..... Santa Clara.
R. B. Ellis ..... Sacramento.
A. B. Stout ..... San Francisco.

1858.

SAN FRANCISCO.

President,

A. B. Stout ..... San Francisco.

Vice Presidents,

J. P. Whitney ..... San Francisco.
C. N. Ege ..... Yuba.
A. J. Spencer ..... San Jose.
I. E. Oatman ..... Sacramento.
J. Morrison ..... San Francisco.

1859.

SACRAMENTO.

President,

R. B. Ellis ..... San Francisco.

Vice Presidents,

J. F. McLane ..... Yuba.
H. W. Harkness ..... Sacramento.
O. Harvey ..... El Dorado.
W. G. Deal ..... Alameda.
J. F. Montgomery ..... Sacramento.

1860.

President,

Isaac Rowell ..... San Francisco.

Vice Presidents,

Isaac S. Titus ..... El Dorado.
C. A. Kirkpatrick ..... Solano.
R. B. Cole ..... San Francisco.
Ira E. Oatman ..... Sacramento.

Corresponding Secretary,

*E. S. Cooper ..... San Francisco.

Recording Secretaries,

G. Taylor ..... Sacramento.
G. L. Simmons ..... Sacramento.

Treasurer,

H. W. Harkness ..... Sacramento.

1861.

President,

Samuel F. Hamm ..... El Dorado.

Vice Presidents,

B. H. Pierson ..... Sacramento.
G. L. Simmons ..... Sacramento.
C. A. Kirkpatrick ..... Solano.
B. A. Sheldon ..... San Francisco.
J. G. Tucker ..... San Francisco.

Corresponding Secretary,

E. S. Cooper ..... San Francisco.

*Dr. Cooper was also elected one of the Vice Presidents, but declined—preferring the position of Corresponding Secretary.

Recording Secretaries,

G. Taylor ..... Sacramento.
Isaac S. Titus ..... El Dorado.

Treasurer,

H. W. Harkness ..... Sacramento.

1870.

SAN FRANCISCO.

[Reorganization of State Medical Society.]

President,

T. M. Logan ..... Sacramento.

Vice Presidents,

S. R. Harris ..... San Francisco.
T. H. Pinkerton ..... Alameda.
J. L. Ord ..... Santa Barbara.
G. A. Shurtleff ..... San Joaquin.
D. B. Hoffman ..... San Diego.

1871.

SACRAMENTO.

President,

H. Gibbons, Sr ..... San Francisco.

Vice Presidents,

G. A. Shurtleff ..... San Joaquin.
F. W. Hatch ..... Sacramento.
F. W. Todd ..... San Joaquin.
J. F. Montgomery ..... Sacramento.

1872.

OAKLAND.

President,

G. A. Shurtleff ..... San Joaquin.

Vice Presidents,

T. H. Pinkerton ..... Alameda.
J. J. Franklin ..... Sonora.
W. F. Cheney ..... Butte.
W. F. Hays ..... San Luis Obispo.

1873.

SACRAMENTO.

President,

T. H. Pinkerton ..... Alameda.

Vice Presidents,

J. M. Brown ..... Solano.
C. A. Kirkpatrick ..... San Mateo.
F. W. Hatch ..... Sacramento.
H. M. Briggs ..... Santa Barbara.

Treasurer,

Ira E. Oatman ..... Sacramento.

Permanent Secretary.

G. G. Tyrrell ..... Sacramento.

1874–5.

SAN FRANCISCO.

President,

J. M. Brown, U. S. N. ..... Solano.

Vice Presidents,

A. B. Nixon ..... Sacramento.
W. F. Cheney ..... Butte.
Martin Baker ..... Tulare.
R. K. Reid ..... San Joaquin.

Treasurer,

Ira E. Oatman ..... Sacramento.

Permanent Secretary,

G. G. Tyrrell ..... Sacramento.

1875–6.

SAN FRANCISCO.

President,

A. B. Nixon ..... Sacramento.

Vice Presidents,

W. F. Cheney ..... Butte.
H. H. Toland ..... San Francisco.
W. R. Cluness ..... Sacramento.
H. S. Orme ..... Los Angeles.

Treasurer,

Ira E. Oatman ..... Sacramento.

Permanent Secretary,

G. G. Tyrrell ..... Sacramento.

1876–7.

SAN FRANCISCO.

President,

Wm. Fitch Cheney ..... Chico.

Vice Presidents,

B. D. Dean.....San Francisco.
N. S. Hamlin.....Yuba City.
M. B. Pond.....Napa.
F. W. Todd.....Stockton.

Treasurer,

Ira E. Oatman.....Sacramento.

Permanent Secretary,

G. G. Tyrrell.....Sacramento.

1877–8.

SAN JOSE.

President,

Washington Ayer.....San Francisco.

Vice Presidents,

L. C. Lane.....San Francisco.
A. W. Saxe.....Santa Clara.
J. M. Briceland.....Shasta.
Thomas Ross.....Woodland.

Treasurer,

Ira E. Oatman.....Sacramento.

Permanent Secretary,

G. G. Tyrrell.....Sacramento.

1878–9.

SAN FRANCISCO.

President,

H. S. Orme.....Los Angeles.

Vice Presidents,

A. W. Saxe.....Santa Clara.
J. M. Briceland.....Shasta.
James Simpson.....San Francisco.
G. L. Simmons.....Sacramento.

Treasurer,

Ira E. Oatman.....Sacramento.

Permanent Secretary,

G. G. Tyrrell.....Sacramento.

1879–80.

SAN FRANCISCO.

President,

A. W. Saxe.....Santa Clara.

Vice Presidents,

F. W. Todd ..... Stockton.
J. M. Briceland ..... Shasta.
C. G. Kenyon ..... San Francisco.
W. A. Washington ..... Merced.

Treasurer,

Ira E. Oatman ..... Sacramento.

Permanent Secretary,

G. G. Tyrrell ..... Sacramento.

1880–81.

President,

F. W. Todd ..... Stockton.

Vice Presidents,

G. G. Tyrrell ..... Sacramento.
G. W. Davis ..... Chico.
A. H. Agard ..... Oakland.
C. A. Kirkpatrick ..... San Mateo.

Treasurer,

Ira E. Oatman ..... Sacramento.

Permanent Secretary,

Wallace A. Briggs ..... Sacramento.

Assistant Secretaries,

Thomas Ross ..... Woodland.
C. G. Kenyon ..... San Francisco.

Board of Censors,

O. O. Burgess ..... San Francisco.
B. R. Swan ..... San Francisco.
M. S. McMahan ..... San Jose.
Wm. M. Lawler ..... Oakland.
J. O. Hirchfelder ..... San Francisco.

ORDINARY MEMBERS.

[Those who have an obelisk (†) prefixed to their names are dead.]

Adams, J. S. ..... Oakland.
Agard, A. H. ..... Oakland.
Allen, C. H. ..... Centerville.
Anthony, A. G. ..... Oakland.
Ayer, W. ..... San Francisco.
†Babcock, H. P. ..... Oakland.
†Baker, Martin ..... Visalia.
Baldwin, H. S. ..... San Francisco.
Bamford, Wm. ..... East Oakland.
Barber, E. T. ..... Oakland.
Barkan, A. ..... San Francisco.
Bates, C. B. ..... Santa Barbara.
Bates, C. M. ..... San Francisco.
Belinge, F. A. A. ..... San Francisco.
Blake, C. E. ..... San Francisco.
Blake, Jas. W. ..... San Francisco.
Boushey, Julius ..... Oakland.
Briceland, J. M. ..... Shasta.
Briggs, H. H. ..... San Francisco.
Brigham, C. B. ..... San Francisco.
Briggs, Wm. Ellery ..... Sacramento.
Briggs, Wallace A. ..... Sacramento.
†Brinkerhoff, S. B. ..... Santa Barbara.
Brown, C. Blake ..... San Francisco.
Brown, J. M., U. S. N. ..... Mare Island.
†Brown, James A. ..... Sutter Creek.
Brown, Wm. M. .....
Brownell, E. A. V. ..... Oakland.
Bruner, W. H. ..... San Francisco.
Buckel, C. Annette ..... Oakland.
Bucknall, G. J. ..... San Francisco.
Bucknell, M. E. ..... San Francisco.

Burdick, J. F. ..... Oakland.
Burgess, O. O. ..... San Francisco.
Cachot, M. A. ..... San Francisco.
Caldwell, A. B. ..... Marysville.
†Caldwell, A. B. ..... Santa Clara.
Caldwell, Robert ..... San Jose.
†Campbell, S. D. ..... Suisun.
Carothers, J. H. ..... Martinez.
Carr, E. S. ..... Oakland.
†Chamberlain, P. ..... San Francisco.
†Chase, Geo. C. ..... Downieville.
†Cheney, William Fitch ..... Chico.
Chesley, C. P. ..... San Francisco.
Chipman, M. M. ..... San Jose.
Chismore, George ..... San Francisco.
Clark, Asa ..... Stockton.
Clark, J. H. ..... Azusa.
Clark, B. F. ..... Chico.
Cluness, W. R. ..... Sacramento.
Cochrane, A. H. ..... San Jose.
Cole, R. Beverly ..... San Francisco.
Coleman, F. W. ..... Napa.
Cory, Benjamin ..... San Jose.
Cox, J. B. ..... San Jose.
†Crook, John T. ..... San Francisco.
Crumpton, H. J. ..... Lakeport.
Curless, Wm. ..... Truckee.
Curran, M. K. ..... San Francisco.
†Curtis, E. M. ..... Sacramento.
Cushing, Clinton ..... San Francisco.
Davis, G. W. ..... Chico.
Dean, Benjamin D. ..... San Francisco.
Delmont, F. ..... Ventura.
Dennis, S. W. ..... San Francisco.
DeWitt, Thos. B ..... San Francisco.
Dozier, Franklin L. ..... Napa.
Dubois, A. S. ..... San Leandro.
Durant, F. C. ..... Folsom.
Dutton, G. W. ..... Tomales.
Ellinwood, C. N. ..... San Francisco.

Farley, C. K. ..... Gilroy.
Fenn, C. M. ..... San Diego.
Ferrer, H. ..... San Francisco.
Fitzgibbon, G. J. ..... San Francisco.
Fiske, Henry M ..... San Francisco.
Fiske, H. W. ..... Quincy.
Flint, Joseph ..... Tehama.
Follingsbee, E. A. ..... San Francisco.
Foley, W. L. ..... Oroville.
Foote, Erastus N. ..... Lockford.
Foulkes, J. F. ..... Oakland.
†Franklin, J. J. ..... Sonora.
Freeman, G. M. ..... San Francisco.
Gardner, Mathew ..... Davisville.
†Gates, H. S. ..... San Francisco.
Gibbons, Henry ..... San Francisco.
Gibbons, Henry, Jr. ..... San Francisco.
Gibbons, Wm. P. ..... Alameda.
Grady, J. F. ..... Weaverville.
Green, T. ..... San Francisco.
Grisselle, Eliza ..... San Francisco.
Grover, W. A. ..... San Francisco.
Hamlin, N. S. ..... Yuba City.
Hanson, Thomas C. ..... Winnemucca.
Hardy, B. F. ..... San Francisco.
†Harris, S. R. ..... San Francisco.
Harvey, O. ..... Galt.
†Harville, J. W. ..... San Francisco.
Hatch, F. W. ..... Sacramento.
Hatch, F. W., Jr. ..... Napa.
Hewston, George ..... San Francisco.
Hirschfelder, J. O. ..... San Francisco.
Higgins, Alice ..... Anaheim.
Hirtel, Augustus ..... San Jose.
Hodgdon, W. H. A. ..... San Francisco.
Holmes, Stillman ..... Santa Cruz.
Hopkins, St. George L. ..... Oakland.
Huber, David ..... Gilroy.
Hunt, R. ..... Nevada City.
Jackson, G. H. ..... Woodland.

Jenkins, T. J. ..... Oroville.
Jones, William C. ..... Grass Valley.
Jump, Alemby ..... Downieville.
Keane, G. B. ..... San Francisco.
Kelly, Thos. ..... San Jose.
Kenyon, C. G. ..... San Francisco.
Kesseler, A. ..... Volcano.
Kier, H. M. ..... Knight's Landing.
Kirkpatrick, C. A. ..... Redwood City.
Laine, J. R. ..... Sacramento.
Lane, L. C. ..... San Francisco.
Lawlor, Wm. M. ..... Oakland.
†Lasvignes, L. ..... Forest City.
LeTourneux, T. J. ..... San Francisco.
Lewitt, Wm. ..... San Francisco.
†Logan, Thomas M. ..... Sacramento.
Leffler, John ..... Pacheco.
Lucas, W. T. ..... Woodland.
Lusson, P. M. ..... San Jose.
Markell, R. S. ..... Cloverdale.
Martinache, N. J. ..... San Francisco.
Martineaut, E. D. ..... San Francisco.
Matson, E. A. ..... Sonora.
Mays, W. H. ..... San Francisco.
McLean, R. A. ..... San Francisco.
McMahan, M. S. ..... San Jose.
McMahan, John R. ..... Oakland.
McNutt, W. F. ..... San Francisco.
McQuesten, Chas. ..... San Francisco.
Mead, E. S. ..... San Jose.
Meares, J. L. ..... San Francisco.
†Mehring, A. B. ..... Visalia.
Miller, Chas. F. ..... Hill's Ferry.
Miller, P. B. McD. ..... Oroville.
†Millington, Jno. ..... San Francisco.
Montgomery, J. F. ..... Sacramento.
†Morse, Jno. F. ..... San Francisco.
Murphy, James ..... San Francisco.
Murphy, R. W. ..... San Francisco.
Mussey, J. M. ..... La Porte.

Neal, H.	Hollister.
Nelson, H. W.	Sacramento.
Newmark, V.	Benicia.
Nixon, A. B.	Sacramento.
Oatman, Ira E.	Sacramento.
O'Neill, A. A.	San Francisco.
O'Toole, M. C.	San Francisco.
Orme, H. S.	Los Angeles.
Patty, L. W.	Petaluma.
Pardee, E. H.	Oakland.
Parramore, E. L.	Woodland.
Paugh, W. J.	San Francisco.
Pawlicki, L.	San Francisco.
Payne, F. H.	Berkeley.
Pelham, J. E.	San Francisco.
Pietrzycki, M.	Rio Vista.
Pike, H. G.	Hopland.
Pinkerton, T. H.	Oakland.
Plummer, R. H.	San Francisco.
Powell, D.	Marysville.
Powers, G. H.	San Francisco.
Pond, M. B.	Napa.
Post, Kate N.	San Francisco.
Pratt, A. H.	Dixon.
Regensberger, A. E.	San Francisco.
Reinhart, M.	Berkeley.
Reynold, G. E.	San Francisco.
Reynolds, G. P.	Alameda.
Robertson, E. B.	San Francisco.
Robertson, H. D.	Oakland.
Rodgers, L. O.	San Francisco.
Rogers, S. J. S.	Marysville.
Ross, Thos.	Woodland.
Rowell, Chas.	San Francisco.
Rucker, Hiram N.	Merced.
Ruggles, Chas. A.	Stockton.
Rupe, S. H.	Healdsburg.
Russell, W. A.	Visalia.
†Sage, C. T.	San Francisco.
Sargent, Jacob L.	Woodbridge.

Saxe, A. W. ..... Santa Clara.
Scott, John ..... San Francisco.
Shafter, J. C. ..... Olema.
†Sharp, Wm. ..... Jackson.
Shuey, Sarah I. ..... Berkeley.
Shurtleff, Benjamin ..... Napa.
Shurtleff, G. A. ..... Stockton.
Simmons, G. L. ..... Sacramento.
Simonton, W. B. ..... Oakland.
Simpson, James ..... San Francisco.
Smith, L. E. ..... La Porte.
Smith, Q. C. ..... Cloverdale.
Snider, T. A. ..... Sacramento.
†Sproule, Samuel F. ..... Chico.
Steele, Chas. H. ..... San Francisco.
Stockton, E. A. ..... Stockton.
Stone, E. P. ..... Oakland.
Stout, A. B. ..... San Francisco.
Stuart, Anabel McG. ..... Santa Barbara.
Strong, A. ..... Woodland.
Sullivan, James F. ..... San Francisco.
Swan, Benj. R. ..... San Francisco.
†Thorndyke, A. ..... Stockton.
Thorne, W. S. ..... San Jose.
†Tilden, T. W. ..... Chico.
Tood, T. M. ..... Auburn.
Todd, F. W. ..... Stockton.
†Toland, H. H. ..... San Francisco.
Trembley, J. B. ..... Oakland.
Twitchell, W. L. ..... San Francisco.
Tyrrell, G. G. ..... Sacramento.
Van Vlack, G. J. ..... San Francisco.
†Van Wyck, John C. ..... Oakland.
Wagner, John ..... San Francisco.
Walker, D. ..... Martinez.
Wanzer, L. M. F. ..... San Francisco.
Washington, W. A. ..... Merced.
†Wayman, W. G. ..... San Francisco.
Wells, J. T. ..... Bakersfield.
Wells, W. H. ..... Dixon.

Wheeler, P.	Oakland.
White, G. A.	Sacramento.
Whittell, A. P.	Mendocino.
Wilder, A. M.	San Francisco.
Wilkins, E. T.	Napa.
Williams, N.	Richland.
Woolsey, E. H.	Oakland.
Worthington, H.	Los Angeles.
†Wythe, W. T.	San Francisco.

HONORARY MEMBERS.

Joseph Hyrtle	Vienna, Austria.
Charles A. Cameron	Dublin, Ireland.
†Professor Louis Agassiz	Massachusetts.
S. W. Thayer	Vermont.
J. H. Wythe	Oakland, Cal.
John Le Conte	Oakland, Cal.
Joseph Le Conte	Oakland, Cal.
A. Ames	Boston, Mass.
S. M. Tibbitts	San Francisco.
P. Landsdale	United States Navy.
David Kindleberger	United States Navy.
W. E. Taylor	United States Navy.
S. F. Shaw	United States Navy.
W. M. Nickerson	United States Navy.
G. Farwell	United States Navy.
C. McCormick	United States Army.
R. Murray	United States Army.
C. C. Keeney	United States Army.
E. Bently	United States Army.
F. Tallon	United States Army.

NOTE.--In alluding, on page 81, to the method prevailing in Paris of disposing of excremental matter, the facts were not stated with strict accuracy. The central cesspool spoken of is adopted only where an entire block belongs to one owner, which is sometimes the case when they are small; the general rule being that each owner of real estate has but one cesspool for all his possessions that lie contiguously or in one body; but where detached or scattered, or an owner is possessed of only a single parcel, it is required that there shall be on each lot or premise, a water tight cesspool, usually below the basement, in an effort to ventilate which a pipe is extended from it up through the building and out of its top.

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TRANSACTIONS

OF THE

MEDICAL SOCIETY

OF THE

STATE OF CALIFORNIA,

DURING THE YEARS 1880 AND 1881.

SACRAMENTO:
Beard & Co., Stationers—Day & Joy, Printers.
1881.

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TRANSACTIONS

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1881.

REPORT OF COMMITTEE ON PUBLICATION.

The Committee on Publication again submits to the Society the result of its annual labors. Had its efforts been a little more heartily seconded by some of the contributors, the Transactions might have made a somewhat earlier appearance. On the whole, however, the Committee believes this volume will not suffer unfavorable comparison with any of its predecessors.

G. L. SIMMONS, Chairman,
W. R. CLUNESS,
H. W. NELSON,
T. A. SNIDER,
W. A. BRIGGS,
Members of Committee on Publication.

SACRAMENTO, July, 1881.

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THE ELEVENTH ANNUAL MEETING

OF THE

MEDICAL SOCIETY

OF THE

STATE OF CALIFORNIA.

The Medical Society of the State of California convened in its Eleventh Annual Session in Covenant Hall, San Francisco, and in the absence of the President, Dr. F. Walton Todd, was called to order at 10:45 A. M., April 20th, 1881, by First Vice President Gerrard G. Tyrrell, M. D., with the following remarks:

LADIES AND GENTLEMEN:—Owing to the continued absence in Europe, of our esteemed President, it becomes my duty as First Vice President of this Society, to preside over this learned body; this unexpected elevation to so high an office, has taken me by surprise and placed me in the position of a suppliant for your indulgence, rather than an object of criticism for any errors I may commit in my interpretations of parlimentary law. I shall endeavor to carry out the wishes of the Society in all fairness and impartiality, and if I should technically err in any of my rulings, believe me that it will not be from any desire to frustrate the will of the Society,

but rather from the neglect in my earlier education of mastering those rules governing deliberative bodies, as laid down by the late Luther S. Cushing. With this explanation of my position and asking your co-operation in the success of this meeting, I now declare the Eleventh Annual Session of the Medical Society of the State of California, duly open for the dispatch of such business as may legitimately come before it.

Dr. C. G. Kenyon then delivered the following address of welcome:

MR. PRESIDENT, AND MEMBERS OF THE MEDICAL SOCIETY OF THE STATE OF CALIFORNIA: It is my pleasant duty as Chairman of your Committee of Arrangements, to welcome you *again* to San Francisco, upon the occasion of the Eleventh Annual Meeting of the Society, and earnestly to invite your attention to the business before it, embracing matters of paramount professional interest as well as the pleasures of social intercourse which the occasion offers.

Your Committee welcome you: The San Francisco County Medical Society, the German Physicians' Society, the Obstetrical Society, and the profession of this city tender you a friendly and fraternal greeting.

The occupation of this spacious and comfortable hall on two previous occasions has proven so satisfactory, the Committee has had no hesitation in again convening you in this place, hoping the power of association may tend a little toward making this session, as former ones have been, free from noise and annoyance of traffic, free from asperities, and rich in productions for improvement, bearing upon the topics of vital importance to our physical, moral and intellectual welfare.

The order of exercises laid before you, together with the voluntary contributions we expect, will, we hope, compensate you for the sacrifice of time and business, in your attendance upon this session.

The large and increasing attendance of the annual meetings of this Society, demonstrates the earnest desire of a good por-

tion of the medical gentlemen of this State to promote the interests of the profession of which we are members.

In this brief address of welcome, paving the way for more important business at hand, I congratulate you upon the favorable auspices under which we meet. Prosperity is abroad in the land, copious rains have given us plentiful harvests; the period of depression which has hung like a cloud over our fair State, is rapidly passing away. Husbandmen, artisans, and the professions, share in the return of business activity.

This, our first greeting, is not tempered with sadness by the loss of any member of our Society. At least, so far as I know, not one during the year has fallen out of line. At our last meeting we were called upon to render tribute to the memory of several of our number, deceased.

Though I am one of the younger members of this body, I can recall to your attention the names of some shining lights who were wont to assemble with us at the annual meetings of this Society, who have been called away by death.

They have passed off the stage of action, but their thoughts and works live after them; and who will gainsay the assertion, that the good seed sown by such men as Logan, Morse, Curtis, Chamberlain, Millington, VanWyck, Babcock, Wythe, Toland and Crooke, will not continue to bear fruit in this organization. I believe it is felt here this morning.

May the memory of such men remain green in our hearts.

Gentlemen, at the close of this session, you are cordially invited to join with us at a banquet, served at the Baldwin Hotel. This is in conformity with a custom established since the organization of this Society.

At our last meeting it was decided not to expect this civility from the profession of this city. But, gentlemen, I am pleased to state to you that the medical men of San Francisco would not brook this imputation upon their generosity.

We trust your appetites will be sharpened by the intellectual work now before you, and that you will relish and enjoy the entertainment spread for you.

Respectfully, C. G. KENYON, M. D.

Referred to Committee on Publication.

Dr. Kenyon then read the roll of members present, which with subsequent additions, was as follows:

San Francisco—Drs. C. P. Chesley, T. B. DeWitt, R. H. Plummer, Miss L. M. P. Wanzer, J. Boushey, J. P. Sullivan, G. J. Bucknall, C. G. Kenyon, H. Gibbons, Jr., W. H. McNutt, W. Ayer, C. M. Bates, C. Cushing, J. Simpson, G. J. Van Vlack, O. O. Burgess, H. S. Baldwin, B. D. Dean, B. F. Hardy, S. M. Tibbetts, Mrs. C. B. Brown, Miss Kate N. Post, M. A. Cachot, L. C. Lane, M. M. Chipman, John Scott, L. O. Rodgers, W. H. Hodgdon, H. M. Fiske, G. J. Fitzgibbon, R. A. McLean, A. Belinge, G. Chismore, H. Gibbons, Sr., J. Wagner, L. Pawlicki, L. J. LeTourneux, B. R. Swan, A. B. Stout, H. H. Hart, S. P. Rugg, R. W. Murphy, J. G. Jewell, A. Chase, W. E. Weldon, C. M. Blake, M. A. McLaughlin, W. B. Niles, C. R. Aiken.

Alameda Co.—Drs. W. B. Simonton, T. H. Pinkerton, J. B. Trembly, H. St. G. Hopkins, J. F. Foulkes, Mrs. C. A. Buckle, P. Wheeler, E. H. Woolsey, W. P. Gibbons, F. A. Seymour, Miss S. J. Shuey, J. H. Wythe, A. H. Agard, J. S. Adams, C. H. Allen, E. P. Barber, J. P. Burdick, A. S. Dubois, F. H. Payne.

Santa Clara Co.—Drs. T. Kelly, W. S. Thorne, A. W. Saxe, Mrs. E. S. Meade, H. H. Caldwell.

Sacramento—Drs. G. G. Tyrrell, J. R. Laine, A. B. Nixon, I. E. Oatman, F. W. Hatch, W. A. Briggs, W. E. Briggs.

San Joaquin Co.—Drs. G. A. Shurtleff, R. K. Reed.

Butte Co.—Drs. G. W. Davis, B. F. Clark, O. Stansbury, N. Watts.

Yolo Co.—Drs. Thos. Ross, J. L. Sargent.

Tuolumne Co.—Dr. T. A. Matson.

San Mateo Co.—Dr. C. A. Kirkpatrick.

Los Angeles Co.—Dr. H. S. Orme.

Sonoma Co.—Dr. L. H. Patty.

Merced Co.—Dr. H. N. Rucker.

Napa Co.—Drs. E. T. Wilkins, M. B. Pond.

Marin Co.—Drs. J. E. Shafter, W. A. McCornack, G. H. Powers.

Lake Co.—Dr. H. J. Crumpton.

On motion, the calling of the roll was omitted.

Vice President G. G. Tyrrell read the Annual Address of President F. Walton Todd, who was absent in Europe.

Referred to Committee on Publication.

Dr. W. F. McNutt, Chairman, read report on Practical Medicine.

Referred to special committee, consisting of Drs. Henry Gibbons, Washington Ayer and James Simpson.

Dr. C. G. Kenyon presented invitation from ladies connected with the Pacific Dispensary Hospital for Women and Children to visit the Hospital and take lunch, between the hours of 12 and 2 o'clock P. M.

Accepted with the thanks of the Society.

Dr. Washington Ayer presented supplemental report on Practical Medicine.

Referred to Committee on Publication.

Adjourned.

AFTERNOON SESSION, APRIL 20TH, 1881.

Dr. A. W. Saxe read a paper on Hawaiian Leprosy.

Referred to Committee on Publication.

Dr. Ira E. Oatman, Treasurer of the Society, submitted his report. Drs. H. S. Orme, G. A. Shurtleff and G. W. Davis were appointed as an Auditing Committee.

A communication from Alameda County Medical Society was read by the Secretary, and on motion made the special order for 3 P. M., April 21st, 1881.

Dr. A. M. Wilder, Chairman, read report on Ophthalmology.

Referred to Committee on Publication.

On motion, Drs. A. W. Saxe, G. W. Davis and A. B. Nixon were appointed to fill vacancies caused by temporary absence of members of the Board of Censors.

Dr. J. H. Wythe, Chairman, presented report on Histology and Microscopy.

Referred to Committee on Publication.

The Board of Censors reported the following applicants eligible to membership:

NAME.	SCHOOL.	DATE.
S. P. Rugg, San Francisco	Bellevue Hospital Med. College	1878
Henry H. Hart, San Francisco	Medical College of Pacific	1879
J. G. Jewell, San Francisco	University of Georgetown, D. C.	1855
W. A. McCormack, Mendocino	Medical College of Pacific	1873
F. A. Seymour, Oakland	Kentucky Academy of Medicine	1864
	University of Louisville	1867
Oscar Stansbury, Chico	University of Maryland	1873
Nelson Watts, Chico	Med. Dept. Western Reserve Col., O.	1865
W. E. Weldon, San Francisco	Medical College of Pacific	1879
Charles M. Blake	Med. Dept. University of California	1876
M. A. McLaughlin, San Fran.	Med. Dept. University of California	1878
H. H. Caldwell, San Jose	Med. Dept. University of California	1880

They were duly elected.

Adjourned.

EVENING SESSION, APRIL 20TH, 1881.

By request of Dr. P. B. M. Miller, Chairman, the report on Surgery was read by Dr. C. G. Kenyon.

Referred to Committee on Publication.

The Board of Censors reported Dr. Albert Chase, Dartmouth Medical College, N. H., 1847, eligible to membership.

He was duly elected.

Dr. Henry Gibbons, Jr., Chairman, read report on Obstetrics.

Referred to Committee on Publication.

Dr. Henry Gibbons, Sr., Chairman of Special Committee, reported in favor of referring Dr. McNutt's report to the State Board of Health.

Report accepted.

Dr. Henry Gibbons, Jr., presented a specimen of double monstrosity forwarded by Drs. Handy and Holbrook, of Tucson, Arizona.

The minutes having been read and approved, the Society adjourned.

MORNING SESSION, APRIL 21ST, 1881.

Society called to order by Vice President Gerrard G. Tyrrell, M. D., at 10:30.

On motion, the following amendment to the Constitution, proposed last year by Dr. Ira E. Oatman, was adopted:

"The President shall annually appoint a Committee on Medical Legislation, whose duty it shall be, by all lawful and honorable means, to promote the passage of acts of legislation approved and recommended by this Society, with discretionary powers in emergencies."

In accordance with the amendment offered last year by Dr. H. S. Orme, the words "shall reside in Sacramento,' were ordered stricken out of Article III, Section 4, of the Constitution.

To Article V, Section 1, in accordance with amendment proposed last year by Dr. Gerrard G. Tyrrell, were added the words, "on Gynecology; on Diseases of Women and Children; on Ophthalmology; on Necrology." And to Section 9, same article, the words, "the duties of these Committees shall be defined by a Committee of three, appointed by the President for that purpose."

Dr. C. N. Ellinwood, as Chairman, read report on Character, Objects and Utility, etc., of the U. S. Marine Hospital Service.

Referred to Committee on Publication.

Dr. W. E. Briggs offered the following: "In view of the practical importance of Color-Blindness and acquired Myopia considered by Dr. A. M. Wilder in his report on Ophthalmology, I move that a special committee be appointed to promote appropriate legislation on these subjects, and to further this end by such extracts from this report as to them may seem desirable."

Amended on motion of Dr. Ira E. Oatman by striking out the words "special committee be appointed," and inserting the words "Committee on Legislation be instructed."

The motion as amended was carried.

A communication from Dr. F. Leypoldt in reference to Index Medicus was read by the Secretary.

On motion of Dr. James Simpson, the importance of this publication and the necessity of its pecuniary support were urged on the profession of this State.

Dr. Charlotte Blake-Brown, Chairman, read report on Diseases of Women and Children, and also supplemental report by Dr. C. Annette Buckel.

Both were referred to Committee on Publication.

On motion of Dr. Henry Gibbons, Sr., authors of papers were restricted to twenty minutes in their reading, and when longer time was required, they were requested to present their contributions in abstract.

Dr. W. F. McNutt exhibited a patient cured of subclavian aneurism by Ergot and Iodide of Potassium.

Dr. M. M. Chipman, Chairman, read report on Topography, Endemics, and Epidemics.

Referred to Committee on Publication.

The Board of Censors submitted the following report:

Your Board of Censors would respectfully report, that they have examined into the case of M. S. McMahan, M. *D.*, of San Jose, recently expelled from the Santa Clara County Medical Society for insulting that Society while acting as its President, and finding also that he has undoubtedly been guilty of repeated and flagrant infraction of Article IV of the Code of Ethics, would recommend that he be expelled from membership of this Society.

O. O. BURGESS,
J. O. HIRSCHFELDER.
BENJ. R. SWAN.

On motion, this report was received, and Dr. M. S. McMahan expelled from the Society.

The Board of Censors reported Dr. W. B. Niles, Roseville, Geneva Medical College, 1870, as eligible to membership, and he was duly elected.

The Auditing Committee reported as follows:

TO THE MEDICAL SOCIETY OF THE STATE OF CALIFORNIA: We, your Committee appointed to examine the accounts of Dr. Ira E. Oatman, beg leave to report that we have carefully examined the same and found them correct. We would recommend that the Permanent Secretary, on the first day of our session, also submit a report of the amount received from dues, etc., and a statement of the financial condition of the Society.

All of which we respectfully submit.

H. S. ORME.
G. A. SHURTLEFF.
G. W. DAVIS.

The report was received and adopted.

Dr. W. P. Gibbons, Chairman, read report on Indigenous Botany and Adulteration of Drugs.

On motion, the author was allowed time to revise his paper before submitting it to Committee on Publication.

Dr. A. B. Nixon, Chairman of the Nominating Committee, reported the following nominations for officers for the ensuing year:

President—Dr. Gerrard G. Tyrrell, of Sacramento.

Vice Presidents—Drs. L. C. Lane, San Francisco; W. S. Thorne, San Jose; B. F. Clark, Chico; E. T. Wilkins, Napa.

Treasurer—Dr. Ira E. Oatman, Sacramento.

Assistant Secretaries—Drs. Thos. Ross, Woodland; C. G. Kenyon, San Francisco.

Board of Censors—Drs. O. O. Burgess, San Francisco; J. O. Hirschfelder, San Francisco; G. H. Powers, Marin; H. J. Crumpton, Lakeport; C. P. Chesley, San Francisco.

Board of Examiners—Drs. C. M. Bates, San Francisco; R. H. Plummer, San Francisco; Clinton Cushing, San Francisco; W. F. McNutt, San Francisco; James Simpson, San Francisco; Henry Gibbons, Jr., San Francisco; A. H. Agard, Oakland.

Alternates—G. A. Shurtleff, Stockton; H. N. Rucker, Merced; Thos. Kelly, San Jose.

referred to Committee on Publication.
On application of Dr. [illegible] Ross, Dr. H. M. [illegible] was
[illegible] to resign his [illegible] the Society.
Report on Gynecology [illegible] Beverly Cole, Chairman.
was referred to [illegible] ication.
On motion [illegible] as the report on Nerves [illegible]
was referred to [illegible] Chairman, for compilation.
[illegible] and afternoon session were
[illegible]

[illegible] APRIL 21ST, 1881.

[illegible] Ferrell, M. D., in the Chair.
[illegible] to the Constitution offered [illegible]
[illegible] 1879-80, by Dr. W. S. [illegible]

[illegible] paper on Prescriptive
[illegible] Manner.
[illegible]
[illegible]
[illegible]
[illegible]
[illegible]
[illegible]
[illegible]
[illegible]
[illegible]
[illegible]
[illegible]

Hotel, tendered them by the medical profession of San Francisco, under the auspices of the San Francisco Medical Society.]

Beferred to Committee on Publication.

On application of Dr. Thomas Ross, Dr. H. M. Kier was allowed to resign his membership in the Society.

Report on Gynecology, by Dr. R. Beverly Cole, Chairman, was referred to Committee on Publication.

On motion of Dr. Henry Gibbons, the report on Necrology was referred back to Dr. J. B. Cox, Chairman, for completion in time for publication.

The minutes of the morning and afternoon session were read, amended and approved.

Adjourned.

EVENING SESSION, APRIL 21ST, 1881.

Vice President Gerrard G. Tyrrell, M. D., in the Chair.

On motion, the amendment to the Constitution offered last year (page 8, Transactions 1879–80), by Dr. W. S. Thorne, was not adopted.

Dr. Clinton Cushing read a voluntary paper on Preventive Medicine and Surgery in the Lying-in-Chamber.

Referred to Committee on Publication.

Dr. W. H. Mays, Chairman of Committee on resolution offered last year by Dr. R. H. Plummer, being absent, the Committee was granted further time.

Dr. G. M. Freeman, being about to remove from the State, presented his resignation, which was accepted.

On motion of Dr. H. S. Orme, a vote of thanks was tendered to all the officers for their services during the past year.

Dr. Henry Gibbons, Sr., called the attention of the Society to W. A. Grover's Medical Directory of the Pacific Coast, urging each member to buy a copy.

Minutes read and approved.

WALLACE A. BRIGGS,
Permanent Secretary.

[After the adjournment of the Society, the members were invited to partake of a splendid banquet at the Baldwin

Hotel, tendered them by the medical profession of San Francisco, under the auspices of the San Francisco Medical Society.]

ANNUAL ADDRESS BY THE PRESIDENT.

F. WALTON TODD, M. D.

LADIES AND GENTLEMEN OF THE CALIFORNIA STATE MEDICAL SOCIETY: Another year has passed since you have assembled together, and has not failed to bring to our Society changes such as are incidental to man in all the varied relations of life, save that while the individual man dies, and is known no more forever, the Society lives and grows stronger with the recurring years. May such ever be the case with the California State Medical Society. Your President may die, or wander off in pursuit of health or relaxation, but the Society, to which we are all so much attached, will meet all the same, and discuss questions of interest to itself, or the great science of which it is the exponent, and I take pride in saying that it is a fair representative of medical science as viewed from its most elevated plane, in countries where it is aided by the governments and enjoys advantages far greater than in our own.

While this is true of our Society, and may be equally true of the average medical man in our country, compared with the European, it is a duty which we owe to ourselves as well as to the public, to put no limit to our exertions to elevate the practitioner to a higher average level, and I am among those who believe that this can best be done by demanding a higher standard of education in candidates for matriculation; in diminishing the number of medical schools; in lengthening the terms of instruction; and by examinations for degrees, in the several States, by boards separate from the schools of instruction. These would seem to be conditions difficult of attain-

ment, and at one time the difficulty seemed to be insurmountable, but it is just such bodies as I have the honor to address, and the American Medical Association, which have not only made it possible, but have gone far towards the accomplishment of two of these objects, namely, a better preparation of matriculants, and longer terms in medical schools. These will come far short of the full measure of their usefulness, so long as examinations for graduation are conducted by parties whose greatest interest lies in the number instead of the qualifications of those upon whom they confer degrees, and will be opposed most strenuously by those schools whose standard for graduation is lowest, for the very obvious reason that disinterested examining boards would not be satisfied with the candidates they would send, and as examinations are at present conducted, all of those men are cast upon the public as qualified for the responsible calling they assume, when in fact they do more, by their unfitness, to popularize Homœopathy than anything the Homœopathist can do or say. And what is just as bad is that, unlike medical science elsewhere, in such schools, and among their graduates there are no fixed principles, and consequently no science. Take for example the opinion of a large majority of general practitioners upon any remedy used by the regular profession, and you will hear, as I have, the bandage condemned as something not only useless, but positively injurious; you will hear the use of the lancet condemned as barbarous, by men who never opened a vein in their lives, and they will assert boldly that it is never justifiable. The same of blistering, cathartics, emetics, mercurials, and so-forth. Now, when such a state of facts is possible, it argues that the practitioner had not learned when the bandage might become injurious; when the lancet was positively so; or might be indispensably necessary, for I maintain that it is so sometimes—and the same of every other remedy.

To rely solely upon the *vis medicatrix naturae* is better than any active agent misapplied, as it is apt to be by graduates of schools which do not impress *principles* upon their pupils, and by pupils graduated who are unfit, by reason of insuffi-

cient mental training, to comprehend their instructors. And when these men in turn become teachers of other youths, who can hardly read and write—and such are fond of assuming this office—to be put through the same class of medical schools, the result to the profession, as well as to the public, is something appalling. I hope that my successor in office will not cease to agitate these subjects, thread-bare as they may become, until the impediments to thorough scientific instruction are overcome—at least in our State. And I certainly think that this Society would do well to give some expression of its sense of the importance of these radical aids to medical improvement. I hope that I shall be pardoned for dwelling so long upon this subject, which has not come before you for the first time to-day, for, in my judgment, it is paramount in importance to any other single question which should interest all who have the real good of the profession at heart.

Here is a subject to which I would invite your attention, and urgently beg for it your serious consideration, namely: Does not our present mode of dispensing medicine need some change?

The subject is radical in its relation to medicine in a two-fold way, affecting seriously the pecuniary interests of the practitioner, whose formulas, many times prepared by laborious study in devising them, as well as by long and careful clinical observation, are so constantly pirated to enrich unscrupulous druggists, who not only use them to make proprietary medicines, which are injurious and sometimes dangerous to the public, but who use them in prescribing for the sick, a practice which is becoming surprisingly frequent in all of our large towns. They soon learn the class of cases in which many of these formulæ is used, and will give them for no other consideration than a high price for compounding them. When asked why they do so improper a thing, their reply is that if they refused they should lose their customer, who would apply to another who would prescribe. The physician and patient are both injured in another way by them, by regarding the prescription as the property of the patient, who has a

right to have it refilled as often as he may wish, without considering the altered condition of the patient.

The second phase of the subject, the custom of confiding to our patients or their friends the medicines we are giving, has still more serious effect, not upon the pecuniary interests of the practitioner alone, but upon the public confidence in regular medicines. We give the formula, explain its nature and effect, it is copied by the recipient, and not only used in the case for which it was properly prescribed, but very freely given to neighbors and friends to their injury, who have cases of sickness, as they think, precisely like their own. The failure is not ascribed to the error in diagnosis, but to the inefficiency of medicine, and it is surprising what an amount of distrust is caused in the minds of people, who will tell you that they have tried everything, and there is no use in doctoring any more, when in fact they have never taken or paid for a single prescription from a regular physician. The annoyance growing out of these practices has driven some gentlemen to have dispensing establishments of their own, as in the case of one of the leading surgeons of San Francisco, and it has been proposed to remedy it by establishing co-operative prescribing places, while others favor a return to the old practice of each physician having his own prescriptions compounded in his office. The present plan is certainly a very convenient, but most objectionable one, and I think that a change to either of the others would be preferable to it.

I congratulate the Society upon the annually increasing interest of its meetings; upon the scientific and practical papers and discussions which come before it; and upon the sacrifice members so cheerfully make in leaving, at no light expense or inconvenience, their families and their business, for the good of the cause, but like the pebble of the mountain torrent they grow brighter by attrition, and like other good deeds the sacrifice redounds eventually to their own interests as well.

We may congratulate ourselves, and regular medicine, upon the creation of a National Board of Health, and the appointment of some of the brightest minds and most indefatigable

workers in the profession to look after its interests, and perform its responsible duties. These gentlemen, chosen from the different sections of the Union, with reference to their special fitness, bring to the task a diversity of talent, eminently fitting them for their high office and the multiform duties devolving upon them, and we may confidently expect as a result of their labors a flood of light, not upon local sanitation alone, but upon those questions which affect the general welfare, as well as the commercial interests of the country. If they do not settle the old dispute of the propriety and advantage of quarantine, we may reasonably expect them to present an aggregation of facts which will enable physicians and law-makers to arrive at more just conclusions in regard of its advantages and disadvantages.

But its labors have a broader scope. They not only contemplate investigation into the primary causes of those fatal diseases which have so disastrously ravaged our Southern towns and cities, by going to the very *fons et origo mali*, in the very bed where it is propagated, but they may be expected, and I doubt not will succeed, by the co-operation of foreign governments, in circumscribing its field and arresting its spread. When the public see such results springing from the only class of practitioners who are capable of working them out, and our own government lending its fostering influence, is it not a reasonable expectation that it will come to regard regular medicine as the only conservator of its true interests in matters relating to health; and thus, as we raise our own standard, diminish the confidence which irregulars of every kind now enjoy, and stop their appointment to sanitary offices, for which they are so unfit—a result which can be worked out only by slow and toilsome effort.

> "Heaven is not gained by a single bound,
> But we mount the ladder round by round."

By organized and intelligent work, and the fearful loss of life and property by yellow fever in the South-west, our general government has been brought to see the importance of granting its aid by creating this Sanitary Board, and when

the American Medical Association, aided by local societies, clamored for justice to our naval medical officers, their just demands were granted; and now, by the same means, I doubt not, laws could be obtained making vaccination compulsory, and providing the means for the efficient performance of the work. In Germany and England, where vaccination is enforced by law, small pox is of rare occurrence, and an epidemic never prevails to any great extent. In France, and wherever there are no such laws, its ravages are sometimes very great before protection can be given by vaccination, and I do not think that the perverse ignorant have any right to endanger the public health, and scatter broadcast so fatal and loathsome a disease, especially when the means of prevention are of so easy attainment.

Of course, if vaccination is made compulsory, it should be put under the supervision of the Board of Health, and a sufficiently liberal provision made to pay adequately responsible men for properly performing it. I would recommend to the Society, through its Legislative Committee, at an early day, to take some steps to accomplish this most desirable end.

I hope that no apology is necessary to the Society for having absented myself from the State during the term for which I was, in its generosity, chosen its presiding officer. Impaired health and inability to perform the requirements of my practice made it an imperative duty to myself and family, as well as to the personal friends in the community whose confidence I have enjoyed in so liberal a degree, and among whom I expect again to labor. It is a proud satisfaction that I have been considered worthy of the high eminence to which your partiality has placed me, and I beg to assure the Society that I shall forever cherish an anxious solicitude for its welfare.

F. WALTON TODD, M. D.

REPORT ON PRACTICAL MEDICINE.

BY W. F. MCNUTT, M. D., CHAIRMAN.

MR. PRESIDENT AND MEMBERS OF THE MEDICAL SOCIETY OF THE STATE OF CALIFORNIA: As Chairman of your Committee on Practical Medicine, I have the honor and pleasure of submitting to you the following report:

It has generally, I believe, been considered that the report on Practical Medicine should consist of a succinct account of the advances made in this department during the year.

The profession is now so elaborately supplied with Medical Journals and Abstracts, at prices within the reach of all, and the facilities for their circulation are so greatly increased, that the necessity of this course should be no longer essential.

My co-adjutor Dr. Washington Ayer, however, will, I am sure, do this part of the report justice, and leave me at liberty to confine my remarks to the etiology of a few of the more important diseases, and to make a few practical deductions therefrom.

At the head of our list we place phthisis pulmonalis and hazard the assertion, that if the present generation of physicians could discover the cause of, and a remedy for the prevention of phthisis pulmonalis, they would confer a greater boon upon the humanity than have all the physicians of all the centuries—it is the *bete noir* of the human family. It has been estimated that for every million inhabitants of the United States, 3,500 die annually of consumption, making in all about 175,000 deaths annually from this disease. As appalling as these figures appear, they give but an inadequate idea of the loss to the country from this disease. In estimating the loss, we must remember that at least 80 per cent of

the deaths from phthisis pulmonalis occur in persons between the ages of 15 and 50, the very prime of life; hundreds of these men and women are of the very highest literary and scientific attainments, whom we can ill afford to lose, while thousands are taken from the ranks of our mechanics and farmers, the very bone and sinew of the nation.

I have seen it estimated by practical economists, that every emigrant who lands on our shores in the prime of life, is worth to the country $800 00; at this rate our annual deaths of 175,000 citizens between the ages of 15 and 50, entail a loss to the States of $14,000,000.

In Great Britain, about one-eighth, and in the British army doing garrison duty, sometimes over two-fifths of the total mortality was from this disease.

According to the census of 1870, 14 per cent of all the deaths in the United States were from consumption, and in some of the New England States, and in low damp parts of some other states, the death rate rose to 20 per cent of the whole or half of all the deaths which occur between the ages of 15 and 50.

In Russia, nearly one-fifth (20 per cent), of the whole number of deaths are from consumption. While Niemeyer, speaking for Germany, says: "In nearly half of all cadavers, we find traces of the nutritive disorders, from which pulmonary consumption proceeds."

It has been estimated that, with all the care exercised by life insurance companies in selecting their risks, rejecting those with hereditary phthisisal tendencies, as well as the suspicious and debilitated, nearly one-fifth of their losses are caused by phthisis.

The study of the cause and prevention of consumption is all the more important, from the fact that it is a disease which when once well advanced, with few exceptions, is incurable.

We might do well to commence the enquiry into the causes of consumption, by the question, what is phthisis pulmonalis? Is it a local disease *ab initio*, or is it a dyscrasia, a morbid blood condition preceding and causing the local condition of

the lung, or is it invariably either? That is, does sometimes the local affection cause the dyscrasia, and at other times the dyscrasia cause the local affection, or in other words is phthisis pulmonalis a dual disease sometimes caused by tubercular deposit, the result of a dyscrasia and sometimes by bronchitis and pneumonitis, or is it a mycosis?

I am sorry to say that, notwithstanding all the research that has been made in this direction, pathologists and microscopists differ widely as to the histological nature of phthisis pulmonalis.

Some maintain the unity of the disease, some the duality, while some the mycotic theory; the latter having satisfied themselves that they have found a specific bacterium for tuberculosis.

The matter then stands at present as follows: Rindfleisch, Cohnheim, Fox, and most French pathologists, advocate the unity of the disease. That is, that all cases of phthisis pulmonalis are the result of tubercle—a dyscrasia. While such pathologists as Virchow, Niemeyer, Wagner and Schupfel, maintain its duality. That is, that phthisis pulmonalis may be the result of tubercle, or may be the result of local inflammations.

Virchow tells us that a tubercle is a non-vascular nodule, not as large as a millet seed, composed of lymphoid cells with a tendency to undergo cheesy or fibroid metamorphosis; while Wagner and Schupfel claim for tuburcle a more complicated structure, giving it a frame work of reticular connective tissue, which encloses lymphoid cells, endothelioid cells, and giant cells. They all agree, however, that the tuburcle originates in a great measure in tissue belonging to the lymphatic system, especially in the lymphatic sheaths accompanying the small arteries; also, in the adenoid tissue in the vicinity of the bronchioles, and in the walls of the alveoli.

As they increase they compress the blood vessels, diminish the calibre of the bronchioles, and thicken the alveolar walls. These nodules soon suffer anaemic necrosis—a fatty metamorphosis—atrophy of their cellular elements, and with their approximate tissue form a cheesy mass.

In addition to this form of phthisis pulmonalis, the dualists maintain that the inflammatory exudation into the air vesicles and inter vesicular tissues, which is rich in fibrin and other solids of the blood, becomes more solid by the absorption of its watery parts, often fails to become liquified and absorbed, and consequently undergoes caseous degeneration, giving rise to destructive inflammatory processes of lung tissue.

Mainly through the enthusiasm, ability and influence of Professor Klebs, the mycotic theory of phthisis pulmonalis has of late received considerable attention. This microscopist claims that he has discovered a specific tubercular bacterium. He claims to have cultivated the tubercular bacterium, and by it injecting into the peritoneum of cats, to have produced tubercular peritonitis. It will require a great deal of research and experiment yet before the mycotic theory of phthisis pulmonalis can be established.

Another very important question in the etiology of this disease, requiring further investigation, is its inoculability. Is there a specific tubercular poison and is that poison infectious?

In 1865, Villeman contended for the existence of a specific tubercular poison, and that it was infectious. He succeeded in producing a tuberculosis in rabbits and guinea-pigs, by inoculating them with tuberculous material.

Later experimenters, particularly Frankel and Klebs, have failed with their experiments to confirm Villeman's results, while others, Cohnheim, for instance, have maintained a specific tubercular poison. There are probably few practicing physicians who are not often asked the question: "Is consumption contagious?" Perhaps it is a wife who is nursing a phthisical husband, or a mother nursing a child. "Should I sleep in the same room with him?" is the inquiry. I believe I might hazard the opinion that three-fourths of the practicing physicians at the present time in the United States will answer the question in the negative. And yet, there is probably not the slightest doubt that, had the subject received but a small part of the attention it deserves, there would have been long ago an accumulation of clinical facts sufficient to place

it beyond all doubt. It could have been long ago established, that the person who inherits a predisposition to consumption and lives and sleeps in the same room with a phthisical patient is very liable to contract the disease, and that hundreds have contracted the disease under such circumstances, in whose family history no predisposition existed.

That hereditary predisposition plays an important role in the etiology of phthisis there is no longer a doubt. Whether tuberculosis is ever congenital is a question I do not remember to have ever seen discussed. Yet, when a child born of a phthisical mother dies of tubercular meningitis when a few weeks old, is it a case of congenital tuberculósis or were the tubercles developed subsequent to its birth, having been produced by the mother's milk as they are supposed to be by the use of milk from tubercular cows. Not long since, I saw a case of tubercular meningitis in a child twelve weeks old. The mother is a strong, healthy woman; the father is tuberculous.

Another most important question in both the etiology and prevention of phthisis, and one upon which the profession generally holds the most shamefully lax, if not criminally careless views, is its relationship to alcoholic and malt liquors. Hundreds of gallons of liquors are drank daily, with the impression that it prevents phthisis, while thousands of gallons are consumed to cure this disease.

Though it is taken and prescribed daily as a preventive of phthisis, we are satisfied that it is an important factor, both directly and indirectly, in causing it. Directly, by producing the disease in the drinker, and indirectly, by rendering the children of drunkards particularly liable to die of this disease. The profession is in a great measure responsible for the universal opinion that whisky prevents and cures consumption. Of course the proper manner to test the question, is by clinical observation, by carefully noting the habits of life of consumptive patients, previous to and during the development of the disease, as well as the habits of their parents. We are satisfied that the conscientious physician who will follow this plan for a few years, will convince himself that the excessive

use of alcoholic liquors will neither prevent nor cure phthisis. Why should it? It has been shown by experiments again and again, that alcohol taken into the system diminishes the functions of respiration, of the capillary vessels, lessens calorification, diminishes the secretions and excretions, and thus prevents the elimination of effete material from both the blood and the tissues.

It also produces fatty degeneration of muscular and glandular tissue, and produces organic disease of the liver, kidneys and other important organs.

How an agent that is known to produce derangement and disease of nearly every organ in the body, should become an almost universal remedy for phthisis, and be held up as an invigorator to the lungs, is singular indeed. When alcoholic liquors were included in the rations of the English army, consumption caused more deaths than it does at present, and the army furnished at that time a higher ratio of mortality from phthisis pulmonalis than the same number of men not habitually using liquor.

Dr. Bell, of New York, in his prize essay on this subject, gives it as his opinion that alcoholic drink, instead of preventing, favors the development of tubercle.

Dr. N. S. Davis, of Chicago, concludes his very able report on this subject to the American Medical Association, as follows:

"From all the facts, experiments, and clinical observations that have come under my notice, I am led to the following conclusions, and to them I invite the critical attention of the section on Practical Medicine:

"'*First*—That th edevelopment of tubercular diseases is facilitated by all those agents and influences, whether climatic or hygienic, which directly or indirectly impair or retard the metamorphosis of the organized structures, and the efficiency of the excretory functions.

"'*Second*—That observations and carefully devised experiments, both show that the presence of alcohol in the human system, notwithstanding its temporary exhilaration of the

cerebral functions, positively retards both metamorphosis and elimination.

"'*Third*—That neither the action of alcoholic stimulants on the functions of the human body, nor the actual results of experience, furnish any evidence that these stimulants are capable of either preventing or retarding the development of tubercular phthisis.'"

Another important factor in the etiology and prevention of phthisis, and the scientific study of which has been sadly neglected, is climate.

The mortality tables of the different countries and of the different States of the Union, show that more die of this disease in cold, northern climates, than in southern climates. We are indebted to Dr. Bowditch, of Boston, for pointing out that certain localities, such as low, damp bottom lands, and proximity to swamps and rivers, predispose their inhabitants to consumption. Climate is as important a feature in the prevention of phthisis as it is in its cause. Although much has been written on the climatic cause of phthisis, and by many of the most competent men in the profession, such as Williams, Lombard, Walsh, Bennett, Weber, Rodden and hundreds of others, the influence of altitude on the prevention and cure of phthisis is not yet appreciated or understood. In fact, the study is only in its infancy. The influence of altitude is bound to play a more important part in the history of the prevention and treatment of phthisis in the future. Thousands of lives with the strongest predispositions to phthisis, will be saved by sending such persons to high and dry atmospheres. When physicians appreciate and the people understand that altitude affords an approximate immunity from this dire enemy, the constitutionally weak will seek safety in height.

Dr. Wight refers to the inhabitants of the Cumberland Range in Tennessee, as a people without phthisis. The surgeons of the United States Army are doing good work, in calling attention to the altitude immunity from phthisis. In New Mexico, Colorado, Arizona, Utah, etc., Chas. Denison, M. D., in his Rocky Mountain Health Report, says: Dr.

Irwin reports for Fort Defiance (6,500 feet), northwestern New Mexico, "during a service of some seven years in New Mexico and Arizona, ranging over a region embraced between the 31st and 36th degrees of north latitude—Fort Union, New Mexico, to Fort Buchanan, Arizona—I never saw or heard of a case of tuberculous disease amongst the native inhabitants of these territories." Surgeon E. P. Vollum, from Camp Douglas, Utah, writes: "In my experience of three years and a half in Utah, I have not seen a case of consumption that originated in the Territory, and the Mormon physicians declare that no persons born in Utah—excepting Indians—have had the disease to their knowledge."

Dr. Archibald Smith, who practiced medicine a long time in the Peruvian Andes, says that phthisis was unknown above 8,000 feet, "except as an exotic," which evidence, Dr. C. T. Williams well remarks, "is important, because we know that even up to 13,500 feet, large towns are found in that part of South America, such as La Paz, the Capital of Bolivia, and therefore, there probably exists some of the causes specially favorable to the development of phthisis."

Though heredity plays such an important part in the etiology of phthisis pulmonalis, yet the knowledge is not taken advantage of to prevent the development of the disease.

While it is an established fact that the children of consumptive parents possess a tendency to contract this disease, their consumptive tendency is, as a rule, overlooked in their food, clothing, education, climate and occupation, an intelligent appreciation of which would save thousands of lives annually.

A child is allowed to nurse a phthisical mother, or is badly fed by hand; is inadequately and inconsiderately dressed, often with a greater consideration for a frivolous fashion than for a delicate constitution; it is educated or mentally crammed at the expense of its physical development; in its choice of climate and occupation it is governed by perhaps a whim of its own or its parents, or perhaps accident; the whole life is as likely as not to be one calculated to induce the development of its hereditary predisposition.

We would have scarcely thought it necessary to have occupied time in pointing out why and when pulmonary hemorrhage produces phthisis pulmonalis; that is, when and why it induces destruction of lung tissue, cavities, etc.; had we not noticed the following in the new and recent edition of Flint's popular work on the Principles and Practice of Medicine, viz:

"Niemeyer attributed the production of phthisis, in some cases, to bronchorrhagia, the presence of blood remaining in the bronchial tubes being supposed to prove a local cause. As already stated, clinical observation, so far affording ground for this opinion, goes to show that hæmoptysis is oftener a salutary event than otherwise, if phthisis already exists; and there is reason to conjecture that it may be sometimes a substitute for, and therefore preventive of, phthisis. But in some rare, exceptional cases, an attack of hæmoptysis appears to be the point of departure for either the development or the active progress of the disease."

This language is an admission on his part that he is unable to say when or why phthisis pulmonalis occasionally seems to be caused by hemorrhage.

We had supposed that it was an accepted and familiar fact, so long as pulmonary hemorrhage confined itself to the mucus membrane of the large bronchi, there is no great likelihood of it causing disease of the lung. The blood escapes freely from the mouth and is easily expectorated, and that bronchial hemorrhage is only likely to produce disease when the blood coagulates in the air cells and small bronchi, and is not dislodged and expectorated, acting as an irritant to the surrounding lung tissue.

The etiology of such hemorrhage is severe physical exertion, mental excitement, high altitude, diseases of the left side of the heart, and often to a morbid and delicate condition of the vascular wall. The latter is probably the case often in epistaxis.

Every physician can recall to mind some patient who has had one or more profuse attacks of hemoptysis, and is now well and free from lung disease. These hemorrhages come from the small branches of the bronchial arteries, which are

distributed in great profusion to the mucus lining of the bronchi, and are entirely for the support and reparation of pulmonary tissue.

On the other hand, we supposed it was an equally accepted fact, that when a hemoptysis occurred from the pulmonary artery, with few exceptions it must necessarily produce destructive inflammatory disease. The pulmonary artery carries blood to be aerated (not for nourishment), and is distributed on the walls of the air vesicles. Now, when blood escapes from the ramifications of the pulmonary arteries, it is not into the large bronchi where it can readily be expectorated, but into the air cells and into the intercellular connective tissue. What escapes into the air cells may be expectorated, but that into the inter-vesicular tissue cannot. It coagulates, and may be absorbed or may set up inflammatory processes which end in cavities and pulmonary phthisis.

TYPHOID FEVER.

From the consideration of the etiology of phthisis, let us inquire into the etiology of typhoid fever, and what are its causes, and how it can be prevented.

The preponderance of opinion at the present time favors the theory that typhoid fever is propagated by a specific poison (that it never originated *de novo*), the nature and properties of which poison are unknown.

The two most prominent theories in regard to the nature of the poison are the chemical and mycotic.

The chemical theory is that when the specific morbific agent of typhoid fever is received into the blood, it produces its peculiar morbid condition by a chemical process.

The mycotic or germ theory is that the morbific agent is a specific organism which, when received into the blood, produces the characteristic morbid processes by an indefinite reproduction of its organisms, or germs.

Whatever may be the physical or chemical properties of the poison (if there be a specific typhoid poison), its propagation and development seem to be governed by fixed laws. It is

pretty generally considered to be a miasmatic contagious disease. That is, its poison or virus originates in a diseased physical organization, and is developed external to the body, in decomposing animal and vegetable matter. That it cannot reproduce itself under any other circumstances.

Those who advocate the spontaneous origin of typhoid fever, maintain that decomposing vegetable matter under certain conditions produces the disease without the leaven of the specific virus. They claim that it can be produced by gas evolved from sewers which have received no specific poison.

A few days since, I received a circular letter from the Sanitary Protection Association of Newport, Rhode Island. The letter consists of a series of questions, addressed to the occupants of houses, in regard to soil pipes, ventilation, water closets, traps, etc., etc. Following the questions we find the following: "If all these conditions are answered to the satisfaction of a sanitarian, then one may consider his home in a healthy condition, and the occupants of it free from all danger of contracting diphtheria or typhoid fever from it." * * * "It is the almost universal opinion of physicians, that every case of diphtheria and typhoid fever is preventable, and that wherever a case occurs, there are some bad sanitary surroundings."

It is fair to infer from this that it is the opinion of this Society, that typhoid fever and diphtheria may occur *de novo.*

Those who maintain the theory of specific poison find it often difficult to account for the admission of the poison into the body. It is probable, however, that it is admitted by air, water and food.

As to the longevity of the poison very little is known. How long it will retain its vitality after it is expelled from the body and before it is developed into decomposing matter is unknown. How long it will retain its vitality after its evolution by decomposition is also unknown.

In typhoid fever, then, we have another of the great decimators of the human family, which, like consumption, spares no country, civilized or uncivilized, north, south, east or west;

and like phthisis, too, it spares no condition of life. It visits the palaces of the rich and the hovels of the poor, the magnificent country residences and the humblest city tenements; and like consumption, too, it chooses its victims mainly from those in the prime of life, leaving the very young and the very old.

Yet of its etiology and prevention we know almost nothing.

Now, let us turn to what might be called another of the great infectious diseases, viz:

DIPHTHERIA.

This, like phthisis and typhoid fever, exists in nearly every climate, probably seldom visiting arctic regions, but at different times in its history has decimated nearly every country in the temperate and tropical zones. As to whether diphtheria is a specific poison, opinion is divided. Many capable observers and high authorities answer the question in the affirmative. Equally good authorities claim that diphtheria originates *de novo.*

McKenzie says in his late work on diphtheria:

"The exciting cause is a specific contagion, and those cases which appear to originate *de novo* probably always arise from the virus—often long dormant and forgotten—of previous cases."

Yet further on he says: "And it is sufficient to state here that the observations are not sufficiently conclusive to warrant us in considering that the essence of the disease has yet been discovered. Low vegetable organisms probably play an important part in the propagation of the disease, but the exact relation between the disease and the organisms has not yet been made out. The experiments of Oertel, Letzerich, and others, if uncontradicted, would only show that micrococci are an invariable concomitant of diphtheria; that they are the sole or even the main agent in its causation cannot as yet be considered proved."

If possible, we know less of the etiology of diphtheria than of phthisis and typhoid. Whether the contagion is gaseous,

fluid or germs, we know not. Of the laws which govern its development or determine its diffusion we know very little.

Whether it is a contagious disease or a miasmatic-contagious disease, is a matter of very great doubt. Many of the highest authorities maintain that it is directly contagious, while equally good authorities claim that the contagion when set free from an individual, must undergo change before it will reproduce itself. The poison probably finds its way into the system through the air, food, drink, and by direct implantation.

While Trousseau, Peter, Duchamp, Harley and many others, have failed to produce diphtheria by direct inocculation with diphtheritic membrane, Trendelberg, Oertel, Eberth and others, claim to have succeeded. Age plays an important part in the etiology of this disease, and unlike the two former diseases, it confines its ravages by preference to children. Why such is the case we have no explanation to offer. The selecting power may be in the poison itself, or it may be that the period in the evolution of the individual determines the choice, that is, the physico-chemical or physiological, or anatomical condition, or it may be that the relation of this contagious disease to the age of the individual is governed entirely by neurological conditions.

The germ theory of this disease has many able advocates. Professor Laycock, of Edinburgh, in 1858, was probably the first to advocate the mycotic origin of diphtheria, and since his time Jodin, Oertel, Eberth, Giacchi, Litzerich, and many others, have not only positively placed diphtheria among the mycotic diseases, but have instituted methods of treatment for the destruction of the germ.

Hundreds of physicians, without the slightest misgivings, seem to believe that they are doing their whole duty to their patient if they use every diligence in charging the blood, or at any rate the stomach, with such remedies as have the highest reputation for the destruction of bacteria.

Jacobi, in his late treatise on this subject, says: "This much is positive at any rate: That no one has as yet proven that

the vegetable organisms alone, and not other free or fixed parts of the diphtheritic membrane, are the vehicles of the infecting elements, and even now the question has not been decided whether the bacteria met with in diphtheria constitute the cause of the disease, or are a part of the process or co-effects of the poisonous action; whether they are the carriers of the poison, or entirely indifferent entities."

In our treatment of contagious disease we must remember what is true of the etiology of diphtheria is true of the etiology of every other contagious disease.

Mycosis is assuming a very prominent position in the medical philosophy of the day; in point of fact it may be said to be the medical philosophy of the day.

A mycotic origin is being claimed by many for nearly every disease, from yellow fever to desquamative nephritis.

As practitioners, it behooves us to make haste slowly; to take reckoning occasionally and see where we distinctly stand. In view of the importance of the germ theory to the etiology of disease, let us see how the matter stands at present.

Something over two hundred years ago Hauffman and Kircher advanced the theory that epidemic cholera was caused by the presence in the atmosphere of invisible germs, which, on entering the body and finding their way into the blood, produced disease by their rapid and unlimited proliferation.

The theory has been since developed by hundreds of earnest workers, each contributing his mite; among them may be mentioned Beale, Bastian, Fox, Sanderson, Tyndall, Chauveau, Pasteur, Oertel, Kleb, Virchow, Weber, and many others.

These laborers have collected a vast amount of collateral and direct evidence in favor of this theory. Sufficient collateral evidence has been collected to establish the fact that certain diseases of plants and of the lower animals are produced by living organisms.

The labors of Pasteur and Salisbury alone are sufficient to place this beyond a doubt. No scientist would now think of doubting that the smut of wheat, or the potato blight, or the muscardine (pebrino) of the silkworm, are caused

by parasites. Inasmuch as these parasitic diseases are contagious, they have been made to contribute to the germ theory of the contagious diseases of man. Between the contagious diseases of plants and the contagious diseases of man, however, there are more points of dissimilarity than similarity. The former never run a definite course, and leave their victim in a convalescent condition and unsusceptible to another attack.

In the collection of direct evidence they have not been so fortunate. Though there are few diseases for which some one has not claimed to have discovered a specific germ, yet as the matter stands at the present time, it is not absolutely proved that there is any one disease which is caused by the presence of a specific bacteria in the blood.

Lister seized upon the germ theory of putrifaction to explain septic and surgical fevers, and when Tyndall proved that the atmospheric dust consisted largely of organisms, the world may be said to have adopted Lister's theory as an absolute and fixed fact, and with it his antiseptic treatment. And yet, beyond the fact of the presence of bacteria, all is speculation.

The exact relation of the bacteria to surgical fever is unknown. Tyndall's discovery of organic particles in the air, does not in any way prove that they find their way into the body and produce disease.

The experiments of M. Chauveau and Burdon Sanderson, on infectious fluids, have advanced our direct evidence considerably.

M. Chauveau, by a series of subtle and accurate experiments on vaccine, shows that vaccine lymph consists of three elements: albuminous liquids, bodies analogous to pus corpuscles, and particles about the 1–20,000th of an inch in diameter, which particles contain the contagious virus.

Dr. Burdon Sanderson confirmed the experiments of Chauveau, and extended his researches to the contagious properties of smallpox, sheeppox and farcy, and announces it as his belief that the contagious matter of scarlatina, rubeola, cholera and syphilis, consists of similar particles whose physical and chemical characteristics he describes as follows: "They are

spheroidal, transparent, of gelatinous consistence, of density nearly equal to that of the animal liquids in which they float, and are mainly, but perhaps not exclusively, composed of albuminous matter."

It can be readily seen that when the fluid which contains these particles evaporates, the particles may be carried through the air to great distances from whence they originated, and those of them which fall upon good ground, multiply an hundred fold, and in this way produce many of the so-called spontaneous cases of contagious diseases.

In physical characteristics, these particles resemble the bacteria of putrifactive fluids.

But we must not forget that poisons exist in different states; we have poisonous gases, poisonous solids, and poisonous liquids, and that they destroy life in a great variety of ways. If we abandon the chemical theory of contagious diseases and of diseased conditions generally, and adopt that of the mycotic, we have still two distinct germ theories: the one may be called the vegetable, parasitic or fungus, which includes the various species of bacteria, and is advocated by most eminent German scientists, as well as by Pasteur, Salisbury and hundreds of others. The other may be called the bioplastic or germ theory of Lionel S. Beale. Beale's idea of a germ is, that it is "a particle of living matter, which has been detached from already existing living matter," and that "the particle concerned in the propagation of contagious diseases is allied in constitution to the living matter, or bioplasm, of the organism," and "derived by uninterrupted descent from the bioplasm, or living matter, of an organism, which at an antecedent period may have been perfectly healthy."

"The minute contagious bioplast is less than 100,000th of an inch in diameter, and often so very clear and structureless as to be scarcely distinguishable from the fluid in which it is suspended. Such a minute particle may readily be transferred from the affected organism to an apparently sound organism. It may be carried a considerable distance from its source, without losing its marvelous power of causing, in the organism

invaded, a series of changes resembling, and often in very minute particulars, the phenomena which have occurred in the organism from which it was derived." "While I freely admit that the facts of the case are conclusive as regards the living state of the active matter of contagious diseases, I am quite unable to subscribe to the arguments advanced in favor of the *vegetable germ theory of disease.*"

Jacobi (diphtheria), Panum, Bergmann and Schmiedsberg, have isolated poisons that contained no bacteria. Rawitsch, and many others, prove that septic infection is not dependent on the existence of bacteria.

Davaine has shown that an infinitely small amount of a chemical poison, free from bacteria, can kill quickly.

Panum, Billroth, C. O. Weber and Hemmer, emphasized the chemical nature of the poison. Hiller, by injecting isolated bacteria in large numbers into the subcutaneous cellular tissue of dogs and rabbits, produced a slight local swelling, but neither abscesses nor fever.

Even injected into his own subcutaneous cellular tissue, it produced but a slight œdema; in subcutaneous wounds which would not have suppurated otherwise, only œdema was produced.

Experiments with the true bacteria of putrefaction led to a similar result.

Injected into hens' eggs, the latter did not become rotten.

There must be, therefore, elements of putrifaction which are independent of bacteria, and Pasteur acknowledges the truth of this remark. So much is true, that bacteria do not receive their albumen in the form in which it exists in the tissues, but it must be first dissolved by the putrefactive process.

As interesting and important as the germ theory of disease is, and if it were established that the *materies morbi*, the *virus* or *contagium* of contagious diseases, or diseases generally, consists of germs, it is certain that we are ignorant of their exact chemical and physical properties; their mode of development; their relation to diseased condition; how they produce disease; how they destroy life; and their nature generally; the best

methods of preventing their introduction into the body and their destruction after admission.

About three weeks ago a fine opportunity was afforded me to philosophize upon the nature and treatment of septic poison, and to fully realize our ignorance of the subject. I drove a large needle into my thumb while sewing up a cadaver upon which I had performed a post-mortem, only a few hours after death, before decomposition had commenced, and while the venom of its poison should be most active. That a cadaver contains bacteria both before and after commencement of decomposition has been admitted; that it contains chemical poison no one doubts, and that an infinitely small amount of chemical poison free of bacteria will cause death quickly, has been shown by Devaine and many others. As to the relation of bioplasts to cadavers I was not so sure.

I consulted my Beale on diseased germs, their nature and origin, but I failed to find anything specific on this point.

If I had introduced poison into my thumb, would it produce disease by a chemical process, by the generation of a gas, capable of destroying life—by catalysis; or had I introduced bacteria into my thumb, or bioplasm, that might destroy life by their rapid proliferation. I was more interested, however, in preventing the disease in this instance than in its etiology, and immediately cast about for a remedy. I prescribed pills of quinine and creosote, the creosote as a likely antiseptic to meet the indications of both the mycotic and chemical theory, the quinine as antipyretic, antiseptic and tonic, to prevent depression of the nervous system. Being at a loss what to take to meet the bioplastic indications, I added to the quinine and creosote, whisky, on general principles.

Alas for the exact knowledge we possess of the mycotic, or bioplastic, or zymotic, or septic, theory of infectious diseases.

My object, however, is not to give a detailed account of the etiology of disease, or the mycotic theory, but to call the attention of the Society to our want of knowledge on this

important matter, the cause of our ignorance, and the importance to the nation of more knowledge on this subject.

Dr. Billings is responsible for the statement that from the census of 1870, over 100,000 deaths occurred from preventable diseases during that year in the United States, and at a loss to the nation of over $100,000,000.

Both the moral and financial standing of the individual is often determined by his physical condition, and the same applies in a great measure to a nation.

The total deaths from yellow fever from August 5th to October 5th, 1878, is said to have cost New Orleans $16,000,000, while the total loss to the Mississippi Valley was estimated at $160,000,000.

By our increased knowledge of the laws which govern contagious diseases, and diseases generally, many thousands of lives are saved annually. This can readily be appreciated by reading any of the histories of great epidemics and plagues which have at one time and another devastated empires (see Bascom's History of Epidemics), and we have no reason to doubt that as many more lives could be saved by the discovery of the nature and properties of the virus—the contagium of infectious diseases.

There is no country in the world so interested in the prevention of preventable diseases as our own. In the old countries of the world, the people largely emigrate, if they do not die—so are a loss to the State in either case; but with us every death is a pecuniary loss of at least an average of $1,000.

There are a great many causes for our lack of knowledge of the etiology of disease, but the principal causes are the subtle character of the subject, the great amount of ability and adaptability and of scientific knowledge required by one individual to enable him to investigate the subject, the absolute necessity of devoting one's whole life to the work, and the most erroneous impressions that the people and government have, that this is a matter which concerns the physician only, and that it is his duty to make the necessary investigations.

We may also add that medical men generally have never fully appreciated that the practitioner has not the education, or the time, or the means, for the prosecution of such work, and that it is not his province.

Enough has already been done in this direction to show that to prosecute the work successfully, an individual must possess a scientific education. That is, he must possess a good, general knowledge of the natural sciences, and a special knowledge of chemistry, chemical physiology, chemical microscopy, physiology, histology, anatomy, pathology, climatology, etc., and the knowledge of the natural history of diseases, etc.

Inasmuch as few men possess these qualifications, is it not the duty of the general government to secure the services of a number of such men, and pay them sufficient to induce them to devote their lives to the subject? Perhaps a half dozen of such men could be secured for $100,000 per year.

Does any sane man doubt that if such men as say, Drs. Draper (of New York), Beale, Bastian, Salisbury, Pasteur, Oertel, Eberth, etc., etc., had given their whole time to this subject for the past ten or twenty years, we would now be as ignorant of the causes and prevention of contagious diseases as we are? Could our government make a better investment?

It is true that our government has constituted a National Board of Health, and it is also true that it has been the means of saving the nation directly and indirectly many thousands of dollars. It is a step in the right direction. But the National Board of Health has been an advantage to the nation, by the knowledge that its members possess of the laws that govern the propagation and development of contagious diseases in particular, and the best means of preventing disease generally. To supply this Board with the knowledge of the chemical and physical properties, and the natural history of the contagium poison itself, is the duty of the government, and I believe it would be a proper thing for our Society to ask the American Medical Association to petition Congress to secure the services of a number of scientists for this purpose.

I must apologize for detaining you so long, and thank you for your attention, and introduce Dr. Washington Ayer, whom you already well know, and who will give us a resume of the important improvements which have been made in practical medicine since we last met.

TOPOGRAPHY AND METEOROLOGY.

BY WASHINGTON AYER, M. D.

[BEING A SUPPLEMENTAL REPORT ON PRACTICAL MEDICINE.]

MR. PRESIDENT, LADIES AND GENTLEMEN: Topography and Meteorology are the cognate sciences of medicine, that are full of interest to such members of the medical profession as desire to penetrate the arcana of nature in search of truths to guide them in their beneficent labors.

The recent, valuable, and interesting report of Dr. J. B. Trembly, upon the subject of Meteorology, has awakened a few reflections in my mind upon the subject of Practical Medicine in California.

The topography of California is full of interest to the tourist in his pleasure seeking, to the man of science, and to the practitioner of medicine; and no State or country presents greater opportunities for careful investigation of this subject, in its connection with the study of disease, and the various influences which modify the same and constantly keep the physician on the *qui vive* in making his selection of remedies for its successful treatment.

With a coast range of mountains of various elevations, covered in many places with a mammoth growth of cedars and pines, which stand like ancient sentinels, overlooking the ocean on the one side and the grand expanse of valleys on the other, one naturally inquires what influence does this battlement of hills exert upon our climate, and what sanitary changes are wrought by the exhalations from the forest trees?

While these trees chafe and bend before the winds from the ocean, they breathe the balm of invigorating balsam that is

alike borne on the breeze and the fog across the valleys and to the foothills far beyond, and must produce some unknown yet healthful change in the air as it hurries over the country.

The winds also, that come down from the snow-covered Sierras at night, during our summer months, drive before them the malaria of the valleys, which returns again with the shades of evening, and climbs far up our mountain canons, where we often find the true type of intermittent fever in August and September, while the great basins of the San Joaquin and Sacramento are filled with the poisonous germs of disease, that arise from the decaying vegetation.

The trade winds that sweep in through the Golden Gate and glance along the second range of hills in eddying circles, uplifting the dry rubbish and dead leaves, and carrying clouds of dust before them, and the belt of thermal springs that form such an interesting feature of our State, both exert an important influence upon the sanitary *status* of California.

Our vast basins of the Sacramento and San Joaquin, unsheltered from the searching heat of an unclouded sky, the vast acreage of the upturned alluvial soil, and the rapid evaporation from the various conduits and natural watercourses, all exert an influence upon the sanitary condition of California. The ebbing and flowing of the tides that rush in through the Golden Gate, to wash the shores of an expanse of country more than sixty miles in length, and into which the sewers empty that daily carry away the filth from the homes of 300,000 human beings, are grateful agencies of health to a crowded city.

Our orchards and young forests of eucalyptus in one portion of our State, our orange groves and vast fields of grain, with many of our foothills dotted with vineyards, are not only evidences of enterprise and thrift, but they are the silent interpreters of the physiological secrets that surround our homes in health and disease.

And while we seek to present anything in practical medicine to the student of medicine in California, all these things must be carefully considered, for the endosmosis and exosmosis that

are constantly taking place through the agency of the lungs during respiration, play no inferior part in the drama of disease.

Where the tule grows the rankest, we shall always find the most positive type of intermittent fever; although it is beyond question, often modified by the influences of the surrounding country, and whether it be of the quotidian, tertian, or bi-diurnal character, it is always marked by the same symptoms, and the same general treatment will effect its cure. In this disease we have positive evidence of the presence of miasmatic poison, and whether the period of incubation shall vary or not, or whether we are able to determine the exact nature of the germ cells or not, the fact that such a poison exists is not disputed.

While the treatment of intermittent fever is well understood by the profession, so far as relates to remedies employed, the time and manner of their use is of the greatest importance.

The course I have followed, and found invariably successful, is as follows, viz:

After the third stage of the attack has passed, I give the following pill:

℞ Quiniæ Sulph.....grxx.
Hydr. Sub-mur.....grxv.
Gelsemin.....gri.
Aq. Ext. Opii.....gri.
M. Ft. pil. No. viii.
Sig.: Four.

From four to six hours after the pills are given, I give the following:

℞ Infr. Sennæ Co.....℥iv.

If the fever be of the quotidian type, I pursue the same course the next day; but if it be of the tertian type, I wait until the following day to repeat the first treatment.

After the bowels have been freely evacuated, I give the following pill:

℞ Quiniæ Sulph.....ʒii.
Gelsemin.....griii.
Aq. Ext. Opii.....griii.
M. Ft. pil. No. xii.

Sig.: Two to be taken two hours before the time for the rigors to return, and six hours after. These pills are to be given the same way for three successive days.

At bedtime each night I give the following powder:

℞ Pulv. Ipecac. et. Opii.....℈ii.
Opii.....grii.
Quiniæ Sulph.....grxx.
M. Ft. chart. No. vi.

If the urine is scanty and high colored, I give as the occasion requires:

℞ Liq. Ammon. Acet.....℥ii.
Sprs. Nit.....
Aq. Camph.....aa℥i.
M.
Sig.: Tablespoonful every six or eight hours.

Six days from the date of the last chill, I repeat the first pill, followed by the second pill, as given above, and also the second week I pursue the same course, when I give the following:

℞ Fl. Ext. Cinch.....ʒii.
Fl. Ext. Cimicif.....ʒii.
Sal. Absinth.....℥ss.
Vin. Xer.....oiss.
Tr. Gelsem.....ʒiii.
M.
Sig: Tablespoonful before each meal until it is all taken.

With this course of treatment I do not remember to have had a single case of relapse in the same season. In all cases the gelsemin must be used to produce dilitation of the pupils.

I now come to a more difficult task, to call your attention to a type of fever that seems to be peculiar to California, and which I can find no good description of in any of our authorities upon fever.

I refer to that type of fever which we call *typho-malarial*, or malario-typhoid, as it best suits one's fancy; for I cannot think the term is selected from any number of well established facts concerning its origin or specific causes.

It cannot be strictly considered an idiopathic, nor a miasmatic type of fever; and while we often find some gastric and

enteric disturbances present, it is not of a gastro-enteric type of fever.

The prodromic symptoms exist for a few days, and are mentioned as weariness, a general indisposition to physical effort, loss of appetite, and sleepless nights, while no particular change is noticed in the action of the bowels or in the condition of the urine; may complain of slight chilliness along the spine, some pain in the head, no particular increase in the temperature of the body, with tongue slightly coated with a viscid coating, while the papillæ remain unchanged, and complains but little of thirst, and the pulse varies from 80 to 86—uniform in action—indicating that the rythm of the heart is unchanged. .

This is about the condition in which the physician finds his patient on his first visit, in a large majority of cases, and he may be inclined to go away feeling there is but little the matter.

The symptoms may remain for eight or ten days, but little changed, when, without any particular reason, we find the pulse greatly increased, in pregnancy perhaps to 120, with very little change in any other respect; and such cases usually terminate in recovery.

In other cases, about the close of the second week we find slight rigors; tongue coated white on the edge, red and dry in the center, like a piece of scraped beef; diarrhœa, mixed with blood, no tenesmus, slight tympanites, but no particular pain or pressure over the ileo-cæcal region; with no well-marked period of exacerbation; occasional epistaxis; and in the still more grave form of this disease we have hæmaturia, or bloody flux.

With all these symptoms, this is not a typical typhoid fever, as described by Louis or any of our authors upon fever, although its analogue in many respects resembles the typhoid.

Then, where is the focus or primary lesion of this disease that so quietly invades the body and overcomes the forces of health; and what name can be given it that will be more comprehensive than that of "adynamic fever?"

During the past year I have had three cases of this fever with anomalous conditions, in which the blood corpuscles appeared to become soggy and deprived of vitality, with hæmaturia, bloody flux, and hæmorrhage of the nose. As these cases present some features of interest, I will briefly refer to some of them.

First—Miss S., aged 20 years, surrounded by all the comforts of life, was taken to bed with the fever above described, and after two weeks, began to convalesce, and was able to leave her room, when I discontinued my visits. At the end of the third week I was again called to see her, and found her bleeding freely from the nose; I applied a tampon of lint, saturated with the Liq. Ferri. Subsulph., and gave the following:

℞ Acid. Sulph. Ar ..... ℥ss.
Tr. Cinnam ..... ℥ss.
Aq. Destil ..... ℥i.
M.
Sig.: Teaspoonful every three hours.

In the morning I found the bleeding still continued, and that during the night she had passed bloody urine, and that an evacuation was unmistakably mixed with blood from the bowels. The pulse had risen to 120. Acid mixture continued, and gave the following, at such intervals as the stomach would bear it:

℞ Opii. Pulv ..... grvi.
Ipecac ..... grvi.
M. Ft. pil. No. xii.
Sig.: One every four hours.

I also gave:

℞ Liq. Secale Cornut ..... ℥i.
Sig.: One-half teaspoonful every four hours.

Each dose two hours after the pill, and continued the acid irrespective of the last remedies; injected strong solutions of aluminii sulphas, and continued tampon. This treatment was continued for three days without much apparent change, when the gums began to bleed, became very spongy, and in a short time became crowded with fungous growths that would bleed upon the slightest pressure.

Upon the fourth day I gave the following:

℞ Acid Nitro-muriat.....ʒiii.
Aq. Destil.....℥vi.
M.
Sig.: Tablespoonful every six hours, and omit the other acid.

Continued the same treatment otherwise. Diet, beef tea and gruel of wheat flour, with milk. The hæmaturia soon disappeared, and other conditions began to improve, but the bleeding did not entirely cease from the nose and gums until the eighth day, when convalescence rapidly took place. Menstruation occurred, with no unusual symptoms, at the *regular period.* This patient lived on Geary street, free from all malarial influences.

Second—This case was that of Mr. H., aged 56, occupation capitalist, residence 1624 Clay street, an elevated part of the city. Taken sick with the above named symptoms, and during the first four days no change—pulse 80, regular, easily compressed—no evidence of hæmostasis or hesitation of the action of the heart. On the fifth day after taking his bed, I was surprised to find that he had passed a restless night, and had been troubled with hemorrhage from the nose. His pulse had risen to 120. Upon inquiry I learned he had passed water several times during the night, and had a chill. On looking into the chamber I found he had been passing bloody urine. Later in the day I had no doubt but he was also having blood pass from the bowels. I prescribed the following:

℞ Acid Nitro-mur.....ʒiii.
Aq. Destil.....℥vi.
M.
Sig.: Tablespoonful every three hours during the day.

I also gave the following pill:

℞ Opii Pulv.....gr.vi.
Quiniæ Sulph.....grxx.
Ipecacuanhæ Pulv.....griv.
M. Ft. pil. No. xii.
Sig.: Two every six hours.

I did not apply the tampon to nose in this case. At bedtime I gave—

℞ Pulv. Doveri.....ʒii.
Potass. Nit.....℥i.
M. Ft. chart. No. vi.
Sig.: One at bedtime.

Diet, beef tea and flour gruel, with milk.

In twenty-four hours the hemorrhage was much lessened—pulse 100—and in four days the hemorrhage had entirely ceased, but the fever continued until the fourteenth day, when convalescence began and a recovery soon followed.

Third—The last case was Miss B., aged 18, 605 Post street, an elevated part of the city. She was taken in a similar manner to the last case, and on the fifth day was attacked with hemorrhage of the nose and hæmaturia.

I prescribed the same course of treatment, modified in quantity, and with the same favorable results.

The cathartic used in all the cases after hemorrhage had commenced was castor oil, given in two drachms of lime juice.

I examined the urine in one case only, and found no albumen.

The last two cases being so widely at variance with the observations of the profession and our authors, that the question may arise, whether the fever did not exist for a number of days prior to the parties being confined to their beds. I have made careful inquiry, and have been unable to learn that any very noticeable indisposition existed prior to my first visit.

While these cases may be regarded as sporadic, the treatment, I think, cannot be without some interest to the profession, the recovery being complete.

Up to the present time but little thoughtful study has been bestowed upon the etiology of this type of fever, which has become so familiar to all the physicians of California, and which seems to be masked by the passive symptoms during its development.

We assume that the cause is of a malarial nature, but this is rather a conjecture than an established fact; and no autopsies have yet revealed the existence of any particular lesion. The cause must be within the reach of science to learn, but who among us shall solve the problem.?

Next, I will briefly call your attention to myelitis, which is of much more freqent occurrence than is usually believed.

But I wish to be understood that I do not refer to that class of encephalic disorders which properly come under the head of meningitis, although some obscure cerebral disturbances may be present in most of these cases. While locomotive action may be present, a differential diagnosis can be readily made out, by the fever and pain in the affected limbs.

I think there can be but one view taken of the pathology of this disease in its advanced stage, while its etiology is wrapt in some doubt; and whether primarily it is dependent upon some specific inflammation which increases the diameter of the nuclei of the cells in the spinal cord, and a thickening of its cylinder axis at first can be no more than conjectured.

If it be of syphilitic origin, the iodide of potassium will do much towards giving relief, but it should not be given during the fever.

There can be no better remedy for this type of fever than the following:

℞ Liq. Ammon. Acct.....ʒiii.
Spr. Nit.....ʒi.
Tr. Digital.....ʒii.
M.
Sig.: Tablespoonful every six hours.

For the pain, give some form of opium with belladonna.

℞ Opii. Pulv.....grvi.
Ext. Belladonnæ.....griv.
M. Ft. pil. No. xii.
Sig.: One or two as occasion may require.

Also,

℞ Pulv. Doveri ..... ʒ ii.
Potass. Nit ..... ʒi.
M. Ft. chart, No. vi.

During the period of fever.

For the numbness and loss of motion, give the patient strychnia or nux vomica, and be present in its use.

The Syr. Ferri., Strych. et Quin., is an excellent form for it to be given. This I regard as one of the most valuable compounds among the many new preparations.

As a general rule, I think from my observations, the various compounds to which our attention is daily called, present more of the cunning of the art of the chemist, than of practical value to the invalid, or convenience to the physician; and it is doubtful, in our practice, whether we should be able to tell which feature of the compound is the particular remedial agent, in a large number of the remedies we are called upon to indorse.

A little more chemical simplicity, I think, would fill the "bill" much more acceptably to the profession.

The bromo-chloralum is a valuable remedy for pruritus of the vulva and for the intense itching about the anus, and is by far the best remedy I have ever used for chilblains—a condition of itching and burning about the feet and toes.

In the latter conditions I used it without diluting, while in the pruritus of the vulva it is well to dilute at first.

Ingluvin I find to be a remedy of some value in "morning sickness," but find a greater benefit by adding an equal part of bismuthi subnit., and give of each gr. x; and here I will take occasion to remark, that during the past few years I have found much less complaint with pregnant women in this respect than formerly.

If such be the observation of other members of the profession, why is it? Does any one suppose the mephitic gases have anything to do in this complaint? Such seems to be the ready solution as to the causes of all other complaints. I admit that I ask in a spirit of pleasant irony.

But it has become the fashion nowadays, to refer nearly all diseases to a malarial origin, and the mephitic gas is made to play the most fantastic part in the realms of imagination, meandering through the winding gas-pipes and climbing along the tortuous sewers to the tops of our hills, where it invades the chamber of luxury as it does the squalid apartments of the poorest among us.

REPORT ON SURGERY.

BY P. B. M. MILLER, M. D., OROVILLE.

MR. PRESIDENT AND MEMBERS OF THE MEDICAL SOCIETY OF THE STATE OF CALIFORNIA: The general advancement of surgical science during the last quarter of this century, is gratifying, and incomparably beyond the best expectations of our professional predecessors. Especially is this remark appropriate to surgical appliances of modern date, whose nomenclature alone comprises sufficient material to swell insignificant pre-existing catalogues of surgical instruments, etc., to large and beautifully illustrated volumes. To the natural mechanical ingenuity of American surgeons we are indebted for a large proportion of these useful auxiliaries of surgery, not so much perhaps for original design, but for the practical modifications of unwieldy and hitherto useless appliances, better adapted for exhibition in surgical repositories, than the purpose for which they were originally intended.

Sims, Peasley, Thomas and Emmet, in their special departments of surgical art, have contributed largely to the list of instruments and appliances, while with equal praise their names have become famous for the surgical operations with which their respective names are associated. It seldom falls to the lot of foreigners to be endowed with congenital mechanical talent; in this wide expanse of country, the order of things seems reversed, for in every hamlet wherever the light of day shines upon it—let its character of architecture and general surroundings be ever so humble, and its locality isolated and remote from modern civilization—still there are to be found evidences of primitive genius in every American home. It is to this national characteristic, doubtless, that Dr. Sayre,

of New York, owes the bulk of his success, and by which he has achieved such flattering recognition in Europe. His appliances and methods of treatment of Pott's disease have won for him an enviable position among his professional brethren abroad, while his apparatus for maintaining extension in coxalgia without compromising locomotion, is everywhere admired. Professor Biglow, of Harvard, has lately added to surgical appliances an exhausting apparatus, for removing calculus debris from the bladder after lithotrity, with very promising results, and its value can scarcely be too highly estimated, when we consider that it is exclusively adopted in suitable cases by one whose experience is so extensive and varied as that of Sir Henry Thompson, who, by the way, has devised an implement bearing his own name, for the same purpose, which possesses, however, no particular advantage over that of Biglow, while in every other respect it is constructed on the same general plan. Dr. Bates' hydrostatic hæmostate for urethral hemorrhage, which has lately come before the profession, seems to be a very ingenious device, although the rarity of the condition requiring such a measure as its name implies, will necessarily limit its use to uncontrollable cases arising as a result of rupture of the walls of the canal, consequent on injury, or on the forcible or violent introduction of instruments. Its mode of action is similar to Barnes' uterine dilator, differing in this respect, however, that whereas the bags referred to dilate the os uteri, this little contrivance acts as a tampon, rendering hemorrhage an impossibility from this source.

The utility of slender whalebone bougies which have been re-introduced into fashion, through the instrumentality of native and foreign specialists, may be mentioned as doubtful in the sphere of usefulness assigned them; I fear that by their agency, the number of urethral tortuous passages has been increased in proportion to the number of cases in which they have been employed, while it is seldom indeed, that one of the smallest calibre can be introduced beyond a stricture, and if successful, without incurring the risk of leaving a por-

tion of the frequently brittle appliance within the genito-urinary canal. So far, then, little progress has been made in this direction. No instrument of this class has proved itself superior to the ordinary cylindrical flexible bougie, and few instruments deserve better appreciation than the latter, when care, dexterity and good judgment are exercised in their employment by the surgeon. It is held by many surgeons that it is impossible to successfully pass an ordinary flexible bougie into the bladder, after repeated attempts with the filiform whalebone bougie have proved unsuccessful; but my own observation and experience justifies an opposite opinion, since if diligent and wise persistence is constantly kept in view, failure with the former instrument will be so exceptional as almost to banish or preclude this unhappy term in connection with the treatment of urethral strictures.

The introduction of a handful of whalebone bougies, such as those above mentioned, I have seen effected, one by one, into the urethral canal, abounding with numerous tortuous false passages, until the whole arrangement had assumed the appearance of an abused whisk-broom, with a handle of stupendous proportions. In the instance referred to, the operator experienced much difficulty in placing his fingers upon the bougie which had entered the obscure urethral tract, and an introduction into the bladder proved a failure. This, I believe, is of common occurrence, even in the hands of the warmest advocates of this plan of treatment. At best, whalebone filiform bougies are only useful as guides to the introduction of urethrotomes, the value of which will be discussed in the succeeding pages.

The various modifications of the cylindrical instrument possess no special merit deserving of mention, though they are extensively used by those of the profession who practice diseases of the genito-urinary system as a special branch of surgical science. To attempt a description of the various modifications of urethrotomes and divulsors, would be an undertaking of no mean order, the different kinds having mounted up to the dozens. Of them it is sufficient to say that their

employment has not been supported by the bulk of those of the profession whose great surgical observation and experience renders them doubly qualified in rendering a just decision; nor have they yet come into general notice, and probably will never attain to that high degree of favor which is so universally accorded to bougies, catheters and steel sounds, in the treatment of urethral strictures. The large majority of the acknowledged heads of surgery counsel gradual dilatation as the safest and best procedure in these cases. External urethrotomy or Syme's perineal section, as it is frequently called, with or without a guide, being advised as the final recourse in the impermeable organic varieties, when with the judicious employment of these instruments the desired result has not been obtained. No doubt, the excitation of vesical catarrh and urethral fever, frequently occurring in connection with continued catheterism, and the occasional use of metallic sounds, were the sole causes for the introduction into practice of divulsion and urethrotomy. It must be admitted, however, that the latter, as well as the former operations, are not at the present time favorably entertained. Urethrotomy is especially unpopular, on account of the difficulty in ascertaining with precision the exact locality and dimensions of a stricture, while it will readily occur to the practical mind, that internal urethral incisions may unintentionally be made behind a stricture, which would favor the promotion of perineal infiltration, eventually rendering perineal section expedient, an operation by no means to be considered as trifling or without its dangers. Of late, vesical and urethral tolerance of clean instruments is generally acknowledged; a fact which proves conclusively that inflammatory disturbances of these parts are not so liable to occur from prolonged catheterism, as was formerly considered.

This has, indeed, been a time of vast progress in mechanical inventions; and also one of great scientific advance, which is characterized by a disregard of authority, accepting proof rather than the influences of arbitrary rules established half a century ago. Twenty years ago, the advantages of aspiration were not fully appreciated or even considered practical; yet

since, nearly all parts of the human body have been explored by its means, revealing in many instances latent transudations and innumerable other morbid conditions in important localities otherwise inaccessible. Its value is chiefly confined to diagnostic purposes, but the little risk involved in its employment, exclusive of the introduction of air, renders it one of the best and most enchanting devices of modern times. It is very doubtful, however, whether curative results follow aspiration, in the vast majority of cases in which it is employed. In simple pleuritic effusion, where the fluid is abundant and purely serous, its use is certainly conducive to the restoration of the normal relations and conditions of the thoracic viscera, while by the removal of the fluid, when by old age or any impaired condition of the system, absorption of the fluid cannot reasonably be expected; or when from degenerative changes the hitherto innocuous fluid becomes purulent, not only is it serviceable by directly ameliorating painful dispnœa, but in many instances warding off the inevitable, until more effective measures are employed for the ultimate safety of the patient.

It occurs to me that paracentesis thoracis (it matters not how much care is taken to prevent the admission of air into the cavity), favors degenerative changes of innocuous pleuritic effusion, especially if exuberant, and it has seemed to me in numerous instances to encourage rather than prevent recurrent accumulations, whether of the simple or purulent type. To rely upon aspiration as a measure by which empyema is to be cured, is a mere delusion. Its effects do not justify the means, since it is simply temporizing; nothing short of a free intercostal incision, with or without the antiseptic precautions, serves this end.

The aspirator has of late assumed the office of the curved trocar in retention of urine. I conceive this to be a most substantial improvement, since the operation comes within range of the skill of the most diffident novice, whose duty it may be to relieve a distended bladder, not yielding to the simple or ordinary methods; while rectal puncture cannot be regarded of so simple a character.

The difficulty experienced in retaining the normal position of certain fractured bones, after they are restored, is proverbial. Oblique and transverse fractures of the femur, intra and extra-capsular, the acromial ends of the clavicle and oblique fractures of both bones of the leg in close proximity with the ankle joint, will suffice as striking examples of fractures with displacement, without enumerating with anything like exactness all of the intractable and rebellious varieties. To correct these seeming irremediable conditions was the desire of our predecessors. They strove to attain that perfection of mechanical skill in the construction of various splints, and the employment of allied appliances, which would abrogate muscular contraction, secure rest, maintain extension, and insure, when properly applied, for an indefinite period, according to the age and constitution, perfect restoration of the injured parts. But the object has not yet been gained, nor is it likely to be achieved in our day; for shortening of fractured limbs prevails to-day, and this deplorable fact will probably continue unaltered under existing rules of surgical practice, and the almost unchangeable nature of human restlessness, when pains rack the body in its manifold and constant demands, whether of thought or action. I grant, with misgivings, that many surgeons claim perfect results in these cases of which I have made special mention, by the adoption of individual plans of treatment. No doubt, a few have succeeded in certain instances, but the large majority of the new methods of treatment possess few, if any, advantages over that of the old.

They certainly do not surpass the treatment in vogue in Liston's time; for the old treatment is to-day the most favored in all large hospitals on the face of the globe. For the benefit of those who claim perfect results by peculiar treatment of their own, I may venture to say, in the words of Dr. F. H. Hamilton, that through "ignorance, inadvertence or intentionally, these men do not tell the truth." At all events, be the truth of this as it may, I must confess my own ignorance of any plan of treatment by which perfect apposition can be maintained in a certain class of cases, of fractures with displacement, or

the means which will enable us in the future to prevent shortening, and the various degrees of deformity consequent on these injuries.

All we can reasonably expect in the present state of our knowledge and skill, is a partial or limited restoration of the normal form, symmetry, and function in the various injuries designated; and this limitation is occasionally obtained to a degree bordering upon perfection, viz: there is no appreciable deformity and no loss of motion, and the patient feels contented with a useful, but otherwise imperfectly repaired limb; the actual conditions at this point of union being discovered only when a post-mortem examination is afforded. The difficulty here referred to is not regarded as applicable to femoral fractures occurring in childhood, in whom perfect restoration of the parts, so far as can be ascertained, is the rule, a discrepancy which, when compared with that of adults, admits of speculation and inquiry. I cannot conceive of anything endowed with physical power, whose machinery is more constantly active than that of a child, with all its vigor and youth. Its limb and trunk movements are as incessant as the ripple of the ocean on the sea shore; even in sleep it is awake; nevertheless, repair goes on uninterruptedly, until the most perfect and happiest results are achieved. In all probability, the abundant reparative material hid away in the repository of infancy, and destined for such extraordinary emergencies, is called into play; natural splints are formed around the broken fragments, by excessive outpouring of plastic lymph, which binds the breach permanently together, by its rapid conversion to organized tissues. This, with the mechanical appliances by which the form and symmetry of the parts involved is secured while repair progresses, are the means by which successful results are accomplished in infancy.

If the foregoing conclusions are in accord with the legitimate data of the subject, it must be conceded that our progress in this particular is all but flattering, and tends to prove that we have not been advancing either by bounds or by strides, but on the contrary have stood still, employing the means set

for our example by such men as Cooper, Liston, Brodie, and other lights of their day.

In reference to this important matter, Holmes says: "Now, if we wish to form an estimate of the relative value of these new plans, we have in the first place to inquire what has been the result of the old treatment—that by the long splint. I think we may take it as established by consent of all the best writers, that in ordinary cases of fractured femur in the adult, with displacement, the result of treatment by the long splint is, as a rule, to leave a certain amount of shortening."

Malgaigne, in fact, goes so far as to say: "When the fragments remain in contact, or when we can replace them and keep them so by means of their serrations, it is easy to cure a fracture of the femur without shortening. In the absence of these conditions the thing is simply impossible."

It is unnecessary to urge the advantages or defects of the various splints and appliances, used in contradistinction to the old. The relative value of each plan must be more fully considered from a practical standpoint. Should any one of the new plans, which are claimed will supply the defects of the old, be vindicated by actual results based upon practical experience, let us unhesitatingly adopt it. But the question naturally arises: By whom is the decision to be proclaimed, so as to make it acceptable to all interested? Here the difficulty seems insurmountable; for individual rivalry, which is to be favored rather than disapproved, would again assert its influence, and the primary object would once more be defeated. But there is nothing to quarrel about in this direction, unfortunately! The fact is, no tangible improvement has of late been made in this department of surgical art; and this has been proved beyond question by the latest results, which do not more than show that our efforts only bear favorable comparison with those preceding us. The same may be said of the appliances employed in the two other varieties of fractures. It will be seen at a glance that it is not in the mechanism of splints for fractures that we claim excellence. It is in the adaptation of mechanical art to various congenital affections, excisions, and affec-

tions of large joints, besides other surgical diseases in which extension and mobility, in addition to retention of the normal position of members so affected, is the primary object, that we have fairly succeeded. Our success in this respect has been truly marvelous, when we reflect upon the happy results attendant upon the various contrivances employed in excision of the elbow joints and knee, as well as in diseases of the hip and those of club foot, and Pott's disease, in the same connection.

The simple but effective elastic bandage designed by Esmarch for preventing hemorrhage in operative surgery of extremities, is a valuable contribution to surgical art; not only is it invaluable for this purpose, but it enables the surgeon to proceed with tedious operations of certain parts requiring careful dissection, without being constantly interrupted by hemorrhage, which invariably occurs when the tourniquet is employed. It is a perfect treat to watch its effects in preventing hemorrhage, while resections are performed, and especially in Syme's amputation through the ankle-joint, for by its means the operator can cling to the os calcis, thus obviating division of the nutrient vessel. There is no obscurity caused by oozing of blood, and all the anatomical structures of the parts divided in the course of the incision are made plainly visible. But bloodless operations are not in consonance with facts, and Esmarch's invention, although a thing of value in restraning hemorrhage of extremities in a limited sense, must not be regarded by any means as implying the full significance of that term, for while it undoubtedly arrests the arterial blood-current, at the point at which it is applied, it is a well known fact that it also retards the venous return of the same fluid, and the loss of blood from this source is frequently as great, if not more considerable, than that occurring when the tourniquet is used as the repressive agent. It may, however, be affirmed that if the operations for which the bandage is especially adapted are performed speedily, it has an advantage; and the reverse may be said of it, when operative procedure is delayed or prolonged.

"The value of this compressive agent in the treatment of aneurisms of the lower limbs, has been clearly established by several successful cases, published in the journals or brought before the various medical societies. It is well known, however, that it is not uniformly successful by itself, and not always when aided by instrumental and digital compression.

"It is quite possible that with the greatest care it might induce sloughing of the tissues over the sack, and it might also have the effect of causing gangrene of the limb, through an excess of coagulation, but I can not speak with any certainty as to the extent of the liability to gangrene from such an accidental occurrence. At all events it may be wise to bear the possibility in mind."—*Lancet.*

Many other uses have been ascribed to this bandage in flattering terms, the majority of which I have found undeserving of any special praise.

"In a great variety of ways we see an active spirit of mechanical invention, showing itself in the drainage tube, the thermo and galvanic cauteries in many operations and new instruments."—*Lancet.* Galvanic cautery is a measure of incontrovertible usefulness, which is destined to play a most important part in excisions of diseased soft parts, when the saving of blood is an important object, and in cases where profuse hemorrhage is liable to occur, from the removal of parts beyond the reach of ligatures, when the knife is employed. The possibility of secondary hemorrhage, however, naturally suggests itself as a result of this method of excision. I am led to infer from my knowledge of the subject, that this accident is rare, a fact which, if established, will greatly enhance its value as a surgical measure.

Our progress in all the branches of the profession, during the last few years, is remarkable for the rapid succession of new ideas and improvements. In all of its departments we see striking evidences of uninterrupted advancement, and general surgery of to-day compares favorably with them all. The treatment of abscesses of cavities and local regions, incised wounds, wounds communicating with fractures and contusions,

are much simplified. Exsection of diseased bone is now executed with a degree of confidence and security truly remarkable; although recklessness has been shown in this as in all other recognized operations.

Ovariotomy is also performed in almost every city and village of the civilized world, with the same amount of assurance displayed in the amputation of a limb twenty years ago; and in addition to the list of old operations which had already been performed with varied results, came new ones. Those which gave negative results necessarily found more or less favor in the ranks of the profession, from want of better or more reliable means; while those from which death was an invariable result fell into disrepute, again to be revived under more promising and favorable auspices.

Specialism and independent digression from the old trodden path had now asserted its power and influence, and operations which were but a few years ago condemned, and even denounced as unwarrantable, were at last placed upon a solid foundation, to be hereafter and forever recognized as established surgical procedures. Such is the surgery of our time, thanks be to anæsthetics and to the indefatigable labors of Mr. Lister, who has robbed it of its terrors and uncertainties by antiseptics, a means which, if not entirely satisfactory, inspires a confidence and a boldness of execution never before displayed. It is therefore not surprising to see added to the literature of surgery such new terms as,

Laparotomy,	*Nephrotomy,*
Enterotomy,	*Pylorotomy,*
Nephro-lithotomy,	*Hysterotomy,*
Cholecystotomy,	*Paracentesis Pericardii,*

and many less important. Of these operations it is sufficient to say, that they have been safely performed, but whether they will all continue to be regarded as safe surgical expedients, time and experience only can decide.

Ovariotomy occupies such an exalted position in surgical science, that we refer to it on all occasions with pride. I may,

however, add that the diagnosis of ovarian tumors, from the character of the fluids contained within them, is, so far, a disappointment. Microscopical and chemical examinations of the fluids have as yet yielded but negative results, and even spectroscopical examination, of which so much was expected, seems to be no more promising in this direction.

The treatment of empyema is particularly gratifying under the new regime, if we accept the statement of Mr. Lister, who avers that its effects are constant and unerring. Mr. Lister says in one of his lectures delivered in King's College Hospital: "We have here the little boy, on whom at a former lecture, rather more than three weeks ago, you saw me operate, letting out a large quantity of thick yellow pus from the left pleural cavity, by free incision in the infra-axillary region. You have seen him, several of you, from time to time, in the ward, but I am anxious that you should have the better opportunity which is afforded by the theater of seeing the progress of the case. This dressing was put on three days ago—on that occasion it was changed after an interval of five days. There is no need that I should change it to-day, but I do so for the sake of showing you the boy's condition. Now that I have removed the dressing under the spray, you observe that it is almost free from discharge of any kind; it is in fact dry. I shall withdraw the silver tube that we have in the wound, for the purpose of drawing the pleura. This tube is filled, as you see, with white lymph, and it was because I saw this lymph in the orifice of the tube, that I thought I could take it out, to make sure that the passage was clear. By turning the boy on his side, so as to make the opening the most dependent part, I am able to empty the pleural cavity completely. It turns out as I suspected, that the lymph in the tube had obstructed it. The perfect dryness of the dressing, combined with the appearance of the lymph, made me suspect this; and you see we have obtained from the child one ounce, not of pus, but of slightly tinged serous fluid. I should have been better pleased for the child's sake to have found, as on former occasions in this case, an entire absence of any fluid in the

pleural cavity; but for your sakes I am glad to see this serum, because it illustrates all the more strikingly the effects of antiseptic treatment. For, I venture to say, that this purely serous accumulation could not have occurred without antiseptic management."

Further on in his lecture, he says: "Had I shown you a dressing, soaked with serous discharge, you might perhaps have thought: 'Are we quite sure there is not here some pus, masked by some action of the carbolic gauze upon it?'"

Again he says: "This, perhaps of all cases of antiseptic surgery, is that which on the one hand most tests, and on the other hand demonstrates, the efficacy of the spray. Empyema is therefore a case requiring very special care in the use of the spray; but if that care has the effect of preventing putrefaction—and that this has been the case here is amply proved by the fact which you have all had the opportunity of verifying, as I handed round the glass—viz: that the serum which has been accumulating for days, is nevertheless absolutely odorless—if, I say, we avoid putrefaction completely from first to last, under the circumstances of empyema treated by free drainage, this is a complete proof of the efficacy of the spray. The pleura has been filled again and again, in the course of these three weeks, with atmosphere in the form of spray, and there can be no reasonable doubt that, if ordinary unpurified air had entered in the same manner, carrying in its dust through the free opening, putrefaction would have occurred within the pleura. We have here therefore as good evidence as any experiment in a laboratory could afford, of the power of the spray to correct the specific property of the atmosphere; or, in other words, to destroy the energy of the septic ferments which the atmosphere contains."

With all due deference to the conclusions of Mr. Lister in this regard, such fortunate circumstances as he relates are rare. The re-formation of pus in pyogenic cavities, is certainly the rule, as far as I can judge from cases in which I have carried out the exactions of Lister. Indeed, more than once, and on all occasions, I have been compelled to abandon the strict sys-

tem advocated by him, in order to more thoroughly empty the pleural cavity of reaccumulated pus, which seemed the inevitable issue of a system, calculated to purify and prevent ingress and egress of air, besides favoring obstruction to the discharge of pus, which under all circumstances was thrown off by the pyogenic membrane in the cases referred to. It is not with the object of detracting from this system any merit which it may possess, that I risk this adverse opinion; it is because I do not feel prepared to support Mr. Lister in the praise of a method, which, at best, seems only on trial, without being convinced that it produces the effects attributed to it by its distinguished originator. My absolute conversion to the system has not yet occurred, especially in its application to this class of cases, and the able lecture of Mr. Lister on the subject has weakened, rather than strengthened my belief in his results. I have had two cases of empyema under my care and observation, within the last eighteen months. The one first operated upon, recovered completely in the short space of six weeks time, under a modified spray treatment, the strict method of Lister having been abandoned on account of rapid reaccumulation of pus, consequent upon retention and disintegration of large flakes of exudation material, which lay in the cavity, causing considerable odor and other unpleasant consequences. The other case is still under my care, and progressing favorably under the same treatment. In both cases, although Listerism was carried out most conscientiously, matter formed and was discharged through the canula, with as without it. They were both children, one a girl aged thirteen, and a boy fourteen years of age, residing in Oroville. In empyema, large flakes of semi-organized lymph frequently become detached from the pleural surfaces, which remain in the cavity for an indefinite period, after the chest has been emptied of its purulent contents. It usually lies at the most dependent part of the affected side, when it is present, where it undergoes putrefactive changes, or, as more frequently happens, the lymph escapes with the pus, when the intercostal incision is first made, or subsequently through the canula, if

its dimensions are sufficiently large to permit its escape. The existence of disorganized material of this kind within the cavity, obviously tends to the production of putrefaction, while its absence materially lessens any fermenting tendency, resulting from exposure to atmospheric action. The perfect repair of a pyogenic cavity can hardly be expected, without the separation of the devitalized lymph, which constitutes the pus-secreting element, being first effected. We know that its escape from the cavity is essential to the best interests of the healing process, and that, if it is retained, it must necessarily undergo putrefaction, or else break down piecemeal in the form of pus directly from the healthy granulating surface. The question then comes, if the lymph referred to should by accident be retained in the cavity, is it possible that an atmosphere of carbolic acid spray is capable of vitalizing an element largely composed of necrosed tissues, or of neutralizing its chemical characters, so as to arrest the formation of pus, or is its conversion to healthy material and fitted for absorption into the animal economy, likely? It seems unreasonable to suppose that antiseptics exert any such favorable influences, and it may safely be asserted that accumulations of pus within a pyogenic cavity will invariably continue their course, despite the action of carbolic acid spray, and the prevention of entrance of air into the cavity, unless free drainage and thorough cleansing of the parts so affected, are made the principal factors in the treatment. In order, therefore, to obtain the most favorable results, the treatment adverted to must be scrupulously carried out; this, together with the removal of such particles of inflammatory deposits as may be found clinging to the internal borders of the wound, seems to me the most important consideration in the treatment of these cases. It matters little how it is done, so long as the object is accomplished by simple and efficient measures, and without doing injury to surrounding vital structures. A weak solution of common salt, or a one per cent solution of carbolic acid, serves this purpose; besides, these substances have the advantage of enjoying the reputation of possessing the power of arresting

decomposition. It may be mentioned in this connection that Mr. Lister in his lecture regards the presence of pus, having an odor, as an absolute and direct result of putrefaction, and insists upon reiterating that this condition can be forestalled, and the formation of pus arrested, if the antiseptic system be faithfully carried out. I think it may be safely asserted that pus is not regarded at the present time as the inevitable issue of putrefaction; on the contrary, it is more frequently admitted to be a normal product in connection with circumscribed inflammation, or rather as an ultimate reparative effort, and common to healthy granulating surfaces, examples of which we see in boils and indolent ulcers. What the elements are which produce acute destructive inflammation, is simply a matter of conjecture; that pus is not a cause, but simply an effect, has been frequently demonstrated, but this question has not yet been settled, and it is only when we arrive at a satisfactory solution of this problem, that any positive assertions can be made in regard to preventive measures. We have failed so far in determining the direct causes of purulent infection, whether of internal organs or local structures. We have surely decorated the various forms of blood poisoning, which to me differ only in degree rather than kind, with arbitrary terms, and have advanced so far as to assign these conditions to constitutional and local causes, but we have not succeeded in the main object—that of determining its nature or the means by which it is perpetuated. The existence of bacteria and micrococci found in diseased tissues proves nothing in this regard, but their discovery has demonstrated our incapacity to scan the wide field of nature's ways; her inconceivable creative industry, or to fathom the latent agencies she employs in health and disease. These fragmentary allusions seem as questioning the correctness of the germ theory, and as such it is intended, for it still remains doubtful whether the minute bodies obtained by means of an aeroscope constitute the germs which develop into the bacteria found in putrefying solutions; and even if this view be confirmed, there is no reason to suppose that the development of

putrefaction incident to local or general blood poisoning and serious injuries depends upon the presence of the various kinds of these bodies. The peculiarity characteristic of animal life lies in its instinctive wanderings in search of conditions favorable to the propagation of species; organisms, infinitely less than the microscope can reveal, follow the same rule, and bacteria finding animal tissues well adapted for their requirements, lodge and multiply in putrid elements in preference to other more cleanly districts. Their mission is not destruction of the higher animal life; perpetuation of the lower order of creative wisdom is the aim. That bacteria are not the ravishers of health they are represented, may be judged from experiments made by Cohn and Wilfet. "These gentlemen, after having discovered bacteria in the air by means of an aeroscope, injected the bacteria-holding solution into the veins of rabbits, without being productive of any evil consequences."—*Lancet.* Under these circumstances we must naturally conclude that septicæmia and other allied conditions depend upon some still more important factors in the production of these abnormal changes than those which have so far been ascribed to bacteria. It also clearly suggests that more than decomposed air plays an important part in the changes under consideration, over which antiseptics would obviously have but little controlling influence.

It is more than probable that these conditions known as blood poisoning, whether arising from internal structural changes or local lesions, are the indirect results of defective circulation, dependent upon local coagulation of blood in a part with co-existing vital depression, or the opposite overstimulation of the vascular system, conditions which develop chemical changes in the tissues or fluids of the parts, independently of germ influences. So far then, antiseptics have been proved of little value, and what is next to be considered is the class of cases, if any, to which they are particularly applicable.

It will readily be observed that their special value is entirely confined to operations which guarantee complete, nay,

absolute, removal of all abnormal factors, active or passive, which, when left behind, would contribute to the subsequent formation of pus, and ultimate failure of union by first intention. Their value is therefore obviously limited to certain surgical procedures, and ovariotomy, perhaps, stands first on the list in this connection. Gastrotomy, including all intra and extra-peritonial operations, resection of bones, including joints, non-malignant growths of soft parts, amputations and minor surgery, where rapid union of a wound is an object, follow in their order of antiseptic usefulness.

But those of the profession who are opposed to antiseptics do not yield even this point, just adverted to, in favor of the measure; on the contrary, they hold that antiseptics in any form engender pyrexia, which is characteristic; that it produces general systemic irritation, and even nephritis, besides a host of local troubles; that it is absorbed in such quantities as to be eliminated by the kidneys, and distinguished in the urine, and that on account of these accidents, it is injurious, if not positively dangerous.

There can be no doubt there is much truth in the remark lately made by Mr. Holmes in relation to the matter at a meeting of the Royal Chirurgical Society of London, at which he stated that the whole question was "one of impressions."

It may be stated that in the struggle for the acquirement of knowledge, intensified by the heat of discussion, much injury has been done to scientific investigations on both sides, which should in the future be discountenanced, for the continuance of professional (though friendly) feuds, even when based upon untimely differences of opinion, can but determine few of the merits of any principle, however reasonable or plain it may be! In the present state of our knowledge we are unable to decide with certainty the principle to which carbolic spray owes its virtue as a healing agent; but it may be stated that in all probability the happy and unaccountable results from its use do not so much depend upon its germicidal influences as the power of local anæsthesia,

which it undoubtedly possesses. It may, therefore, be assumed that it exercises an inhibitory influence upon peripheral nervous irritation; in other words, it prevents or modifies traumatic shock, arising from mutilation of nervous and muscular tissues, while it maintains the normal physical equilibrium of the parts involved, existing prior to the injury. This view seems to be no perversion of legitimate thought, when we consider the rapidity with which union of incised wounds takes place after antiseptic treatment. The peculiar effects of carbolic acid spray upon the hands during prolonged surgical operations have frequently been observed and discussed, and in no surgical operation has it afforded me better opportunities to judge of its effects than in that of ovariotomy. From ten to fifteen minutes after it is first applied, and while the operation is being performed, a peculiar anæsthesia or numbness of the hand, next to the spray, is decidedly felt, and the skin is observed to be white and wrinkled. The same condition of the walls of the abdomen of the patient is marked, while the peritoneum and intestines also become bleached and shrunken; indeed, local anæsthesia of the parts involved in the surgical procedure is thus produced, and shock to the nervous system seems to be annulled or completely abrogated. It is certain that carbolic acid and other allied applications possess no power of destroying the tendency to general blood poisoning, if putrefaction of the surface of a wound has already ensued, nor can I conceive any grounds for its special use in these cases, as a surgical dressing, beyond what its anæsthetic properties and the principle of cleanliness guarantee, and which the method demands. This is, then, the all-important secret of Listerism, for no longer is putrid material carried from one surgical patient to another by sponges, polluted garments, or dirty hands. Lister has ingeniously completed the chain of evidence necessary for maintaining cleanliness by theoretical device; his success in bringing it into general use has been attained by strenuously advocating the course required for its adoption; in short, while Lister has invented a theory not entirely perfect

in its deductions, he vigorously enforces a principle admirable in its conception and details. Based upon the broad ground of general usefulness, it mainly contributes to prevent the spread of certain surgical diseases, whilst it is the most rapid promoter of health and of the laws which govern animal repair. Within the past year we have been told by Mr. Cheyne that gonorrhœa must be added to the list of septic inflammations; he also states that he has obtained very satisfactory results from antiseptic bougies, which he has introduced for its treatment.

A solution of carbolic acid has long since been advocated, and extensively used by injection, with very unsatisfactory results. After the novelty of antiseptic bougies is consigned to its resting place, copaiba, and the preparation of lead and zinc, will probably resume their position in the therapeutics of gonorrhœa.

It is to be regretted that the announcement of Prof. Clay in reference to the efficacy of Chian turpentine as a remedy for cancer has proved untimely and fallacious. "It would have been a pleasant task to have reported a number of successes, and to have congratulated Prof. Clay upon having made the discovery of a cure for cancer. But after a long and careful trial the conclusions forced upon me are, that as a cure for cancer, Chian turpentine is utterly valueless." Mr. H. Morris, in his article from which this is taken, mentions twelve cases of cancer of various types, and in localities treated by him in the out department of the Middlesex Hospital, in support of his conclusions. The discovery of a remedy for cancer would be hailed with peculiar pleasure and delight at the present time, for it has been proved that excision of cancers more frequently promotes activity of growth than otherwise; and unfortunately, surgical interference is not permitted in these cases, until the numberless list of reputed cancer remedies has been exhausted without avail; a fact which tends to show that excision would probably yield better results if early resorted to in the primary stages of cancerous development.

Mr. Christopher Heath's remarkable case of removal of a large epithelioma of the lower jaw and floor of the mouth, in which, two years after the operation there was no recurrence of the disease, shows that life can, at least, be prolonged for a certain length of time, without material physical suffering.

Little of interest has occurred in the progress of operative surgery during the past year, beyond what has already been briefly alluded to. Baker's method of excising the tongue, and Pollock's operation for piles, being the chief attractions at the beginning of this year.

It is rather remarkable that, while the physical signs and the rational symptoms, in addition to treatment of the various forms of ovarian, uterine, extra-uterine and extra-peritoneal tumors, have excited the attention of the profession during the past decade, that several accidents and diseases of the intestines, as well as those of the liver, have been so sadly neglected or overlooked in this regard; examples of which we see in intussusception of the bowels and hydatid tumors of the liver, as also in abscess of that organ. The mortality from intussusception is especially alarming under the present mode of expectancy, which comprises the opium and enema regimen, as remedies in this accidental lesion. Dr. Brinton estimates that out of one hundred cases of all kinds of intestinal obstruction, forty-three per cent die from intussusception; a fact which proves the relative frequency of invagination, when compared with all the other varieties of intestinal obstruction combined. Admitting such to be the case, besides taking into consideration the negative results obtained by medication, the propriety of surgical interference, when a positive diagnosis is no longer a question of doubt, cannot any longer be a matter of impression, but of necessity. For it is to surgery that we must in the future look for satisfactory results in these cases, little as it has yet been instrumental in the saving of life.

Mr. Holmes, in one instance, performed abdominal section, drawing out the invaginated portion of the bowel with success, a rapid recovery following. But no well-defined rules have

been laid down for our guidance in the diagnosis and treatment of this form of intestinal obstruction. Indeed, the mastery of the subject in all its important bearings has not been compassed beyond vague impressions, and these have been more frequently based upon fancies than observation, rendering the conditions still more ambiguous, when the method by which good results are to be obtained is thus explained. I wish that my hope may be realized that some great mind, with a discriminative hand, will give us results which will prove that invaginated portions of the intestines, even when agglutinated together by inflammatory deposit, may be stripped from their mesenteric attachments, and the strangulated mass removed, and that union of the divided ends of the intestine, when brought in apposition, and held in position by animal continuous suture, may be successful, and that saving of life in this way may be achieved.

The fact that absorption of animal tendonous fibres, properly preserved, is no longer disputed, may stimulate surgeons in the consideration of its application to this department of surgery. The employment of silk sutures in intestinal wounds has long since been regarded as unsatisfactory on account of the irritation and ulceration which it produces, and fatal peritonitis is even mentioned in the category of evils attendant upon its use in this connection.

The general adoption of catgut as a suture or ligature is therefore clearly indicated, and it is to be hoped that its use will serve our best purpose in this respect. The operation lately performed by Mr. Lawson Tait, in a case of hydatid tumor, in which the liver was cut into simultaneously with abdominal section, and the wound in the liver stitched to the wound in the abdomen, no previous adhesion of the parts having existed, suggests that at no distant period hydatid tumors, suppurating cysts, as well as other varieties of hepatic abscess, will be treated as effectively as large abscesses of other parts have been, since large incisions became the established rules of practice.

When all our hopes are thus satisfied, and our desires are attained by the unflagging zeal of such men as have brightened the history of surgery in our age, then surely will our calling have become a science and an art, and those who share its labors may well feel proud of the noble profession to which they belong.

REPORT ON OBSTETRICS.

BY HENRY GIBBONS, JR., M. D., CHAIRMAN.

In considering the character of report to be made upon the subject of obstetrics, it seemed to me that I might better serve the Society, and accomplish the object of the appointment of the committee of which I am named Chairman, by presenting a summary of the current literature of this branch for 1880, rather than attempt the preparation of a paper upon an individual topic. In furtherance of this view, the various periodicals containing articles on obstetric matters were collected, and a list of the articles made, whereupon the magnitude of the undertaking developed itself. It would far transcend the limits of a report of this kind, to include within it even a brief summary of the year's progress in midwifery as found portrayed in the scores of medical journals and publications of this country and Europe. From the three hundred articles consulted, including several thousands of pages, as much of interest and value will be culled as time and space permit.

POSITION OF UTERUS AND SOFT PARTS.

Of the anatomy of the uterus almost nothing is presented. Dr. F. P. Foster (*Am. Journal Obstet., Jan.*, 1880), by an elaborate system of measurements, modified from Schultze and Schroeder, endeavors to locate the position of this organ, as well as the position of the various points upon the external soft parts. He finds, with Schultze, that the soft parts in the median line project in nulliparæ 2.2 cm. on the average, which is little more than half as much as claimed by Schroeder. From the point of the coccyx to the anus averaged 4.5 cm. in nulliparæ (59 observations), and 4.7 cm. in multiparæ

(100 observations), which is considerably less than the results obtained by both the other observers. From the anus to the fourchette averaged 2.7 cm. in 57 nulliparæ and 2.5 cm. in 65 multiparæ. In other words, he finds the distance from the anus to the fourchette to average the same in nulliparæ and multiparæ, viz: 7.2 cm., the only influence of childbearing apparently being to draw the anus forward an average of .2 cm. The unexpected statement is made that the fourchette escaped destruction in sixty-eight of one hundred and five parous women. The hymen was always found attached to the lower border of the vulvo-vaginal ring, its upper free border bellied backward toward the cavity of the vagina so as often to escape observation, unless in withdrawing the examining finger it was turned palmar surface downward and hooked. In endeavoring to locate the uterus, measurements were taken from the coccyx to the os, and from the lower border of the symphysis pubis to the same point. They were too few and variable to be of any value. Finally, Dr. Foster absolutely rejects Schultze's idea that anteversion of the uterus is the normal condition when the bladder is empty.

PERSISTENCE OF HYMEN.

Four cases of persistence of the hymen until parturition, are reported by Dr. Buschmann (*Wien. Med. Wochenschrift, No.* 51). In all, the opening was very small, not permitting intromission. One was a woman 24 years of age, the other three were girls of 16 years. The hymen ruptured in parturition. A case of like character fell under my own observation three years since. The orifice was barely large enough to admit the examining finger without the use of some force.

DOUBLE UTERI.

Several cases of double uteri were reported during the year. One by Dr. M. A. Cachot of this city (*Pacific Med. & Surg. Journal, Jan.*, 1880). The lady menstruated twice a month, alternately painfully and painlessly. Becoming preg-

nant, she was in due time delivered, after tedious labor, of a living child, the placenta being expelled and uterus contracting firmly. Three days later hemorrhage and labor pains set in, and a dead three months' fetus was delivered from a second uterus to the left of the former. Dr. W. R. D. Blackwood (*Phil. Med. Times, Oct.*, 1879), reports a case of double vagina and cervix uteri, the body of the uterus being single. A singular feature of the case was the alternate menstruation through the different vaginæ. A still more interesting case is epitomized in the *Obstetric Gazette* for January, 1880. Not only was the vagina double, but the uterus also, and conception took place in both uteri. An embryo of one month was extracted with the finger from the left uterus, and three days later a fetus of three months was extracted from the right uterus. The author, Dr. Sotschawa, of Moscow, observes that this case is not only remarkable for its rarity (only thirty cases being on record), but also because it is a proof of the possibility of superfetation.

SUPERFETATION.

A supposed case of superfetation is reported by Dr. W. Walden, of Nebraska (*Chic. Med. Journal & Exam.*), upon, as it seems to me, entirely insufficient evidence. The patient gave birth to a healthy full-termed child of about five pounds weight, says Dr. W. Two days later, a fetus of apparently four months, with membranes intact, was expelled. The patient had menstruated three or four times after she was aware of pregnancy. If these data are correct, the dates of conception were five months separated, and superfetation is proved. But there is no proof that conception took place nine months prior to delivery; neither is it clear that the five pound child was full-termed. Assuming the child to have been seven months in utero, there would have been but three months between the dates of conception, and we would have a case of superfecundation—accepting Leishman's definition of this term—which is considered possible by most observers. In a discussion following the report of a case of superfecun-

dation in the Society of German Physicians of New York (*N. Y. Med. Journal, Feb.*, 1880), Dr. Noeggerath remarked that the recent researches of De Sinety and Slavjanski had demonstrated, contrary to the hitherto accepted theory, that the ripening and escape of ovules proceeded uninterruptedly throughout the whole course of pregnancy. Should further observation prove the correctness of this statement, it only needs to demonstrate that the two decidua remain separated not only for the first three or four months as shown by Coste, but during the later months of pregnancy as well, to demonstrate the possibility of superfetation.

MATERNAL IMPRESSIONS.

Dr. T. Waddel furnishes the *Toledo Medical Journal* (August, 1880), an article on maternal impressions, in which he assumes the following, among others, to be well established facts: that during embryonic existence, certain parts may suffer arrest of development, while other parts continue their evolution; that any agent causing such arrest must necessarily operate prior to such evolution; that arrest of development may be local or general; that the reverse condition, excessive development, may obtain, and like family resemblance be transmitted through generations; that intra-uterine amputations are the result of amniotic bands, placental adhesions, fracture, or pressure of loop of umbilical cord, the former following inflammatory processes; that these bands and the amputated member may afterward be absorbed; that so-called double monsters or *fetus in fetu*, as well as twins in one chorion result from the development of a double cicatricula on the blastodermic membrane of a single ovum, the nearness of these primitive traces determining whether the former or latter condition shall result. In either case, there is always unity of sex. That every known form of malformation in the human race has its analogue in the lower animals, birds, fishes, and reptiles. All writers favoring the view that through maternal impressions deformity or destruction of the fetus may arise, admit the absence of nerve connection

between mother and fetus, whose blood currents do not even commingle, and yet it is only through the blood that maternal impressions can operate. From a consideration of these facts, the author concludes that the theory of the influence of maternal impressions is untenable.

And yet one's unbelief is almost staggered by a report (*American Journ. Med. Scie.*, *Jan.*, 1881), of a most curious case under care of Dr. Wm. Hunt of Pennsylvania Hospital. A woman eight and a half months pregnant was admitted for extensive burns of arms, legs and back, of which she died in three days, having given birth to a stillborn child the day following the injury. The fetal heart sounds were heard within six hours of birth. "The important fact to record is that the child was apparently burnt and blistered in extent and places almost exactly corresponding to the injuries of the mother. The blisters on the child were standing out fresh and full as though recently formed, and in places the derm was also involved as in the mother." Various explanations—pemphigus, syphilis, maceration, etc.—were considered untenable.

SIGN OF PREGNANCY.

Dr. J. H. Carstens (*Detroit Lancet*, *Sept.*, 1880) insists on the reliability of discoloration of the vagina, as an evidence of pregnancy. He adds: "I found that it had been mentioned years ago by Jacquemier and Kluege, but it seems to have fallen into oblivion, and is not mentioned in the ordinary text books. * * * It has never failed me. I have often staked my reputation on it; but when I failed to heed the warning color, I came to grief." Dr. C. is in error in stating that the text books do not refer to it. He will find it mentioned by Cazeaux, Montgomery, Tanner, Hodge, Meadows, Leishman, Bedford, Playfair, etc., etc. His faith in its value suggests for it a greater importance than is usually accorded it.

EXTERNAL DIAGNOSIS IN PREGNANCY.

Running through the three numbers of the *American Journal of Obstetrics* is a very elaborate and freely illustrated

article of over a hundred pages by Dr. Paul F. Munde, its editor, on "The diagnosis and treatment of obstetric cases by external (abdominal) examination and manipulation." In a comprehensive historical sketch the author shows how little attention has been accorded the subject in this country and in England, and *per contra*, what great importance attaches to it in Germany. This is exemplified by the following statement of Schroeder, which is emphasized by Dr. Munde: "For a less practiced observer, unless the conditions be exceedingly unfavorable, the determination of the fetal presentation by external examination allows of much less room for error than if undertaken by internal exploration alone, and the former should never be omitted, because it gives us an excellent control of the results obtained by indagation." It will be impossible in this summary to make any extended reference to the paper, and yet the subject should not be dismissed without a consideration of the more important features, many of which, however, are already well known to physicians.

Inspection, *palpation*, *percussion* and *auscultation*, are the methods employed; palpation being the most important, as the design is not merely to determine pregnancy (which is positively done by auscultation of the fetal heart), but the presentation and position of the fetus. The patient is placed upon her back, the knees drawn up, and the abdomen entirely exposed. The bladder and rectum should be empty.

Inspection determines the size and shape of the abdomen—whether longitudinal or transverse; the existence or otherwise of the cutaneous striæ or silvery lines from rupture of the deeper layer of the skin by distension, which are absent in 11 p. c. only of primigravidæ and 5 p. c. of multigravidæ; the discoloration of the linea alba; the condition of the umbilicus; and frequently, the fetal movements. Palpation is accomplished by "gently but firmly pressing the palmar surfaces (not the tips only) of the fingers of both hands into the abdominal parietes, and gradually moving them over the abdominal surface with the least possible irritation. In this way, we are able in the majority of instances to detect with abso-

lute certainty the shape and consistence of the uterus, period of pregnancy, amount of liquor amnii, position, approximate size, life, the greater or lesser degree of mobility of the child, its different members, the presence of more than one fetus, the fullness of the urinary bladder, and, finally, any abnormal conditions which may be present, such as tumors and malpositions of the uterus, diastasis of the recti muscles, ascites, etc., etc."

In determining the *period* of pregnancy, it becomes necessary to measure the elevation of the fundus of the uterus. This is best done by measuring from the symphysis with the pelvimeter. Contrary to the usually accepted opinion, Ahlfeld, Setugin and Richelot decide that the fundus keeps ascending to the very end of pregnancy, and that there is no descent of the fundus during the last week, provided the examination be made with the patient on her back. When in the erect position, however, this fall does take place. These writers have constructed tables showing the average elevation of the uterus in each week of pregnancy. The parts of the fetus most readily recognized are the rounded hard, movable head, the soft, irregular, less movable breech, the long, regular back, and the movable, irregular projecting feet and legs. Prof. Carl Braun assumes to be able to determine even the weight and length of the fetus, but as the latter is found by experience to be about twice the length of the long uterine axis, it may not be so difficult of accomplishment in ordinary cases. In like manner, twins, and even triplets, are diagnosticated. Palpation is of assistance in deciding upon the death of the fetus, hydrocephalus, rupture of the uterus and extrauterine fetation. As obstacles to the proper application of this method of diagnosis are mentioned, tension of the abdominal walls, muscular contractions of the uterus, unusual tenderness of the abdomen, hydramnios, excessive deposit of fat, and, possibly, ascites and flatus.

Under the head of *auscultation* are considered the evidences of pregnancy derived from pulsation, so well known. In proof of the value of the detection of the fetal heart sounds

as evidence of pregnancy, it is mentioned that of 906 cases examined by Depaul, in 8 only was the sound not heard. The frequency of heart sounds as a means of determining the sex in utero is fully treated, numerous statistical statements in support of both sides of the question being presented. These are so conflicting that it must be admitted that Frankenhauser's theory is not established; although there is some ground for believing that, within certain limits, it may be accepted. The latter part of Dr. Munde's paper discusses versions, change of presentations, expression of the fetus and expression of the placenta. Evidently the author favors a return to the discarded cephalic version of the ancients, and yet not this either, with its fearful mortality to mother and child, but to the version by external manipulation, with certain restrictions, a process often easily accomplished and innocent of evil, as I know by experience. No possible objection can be offered to its trial in transverse presentations, as podalic version with the hand in the uterus must otherwise be resorted to; but the case is not so clear in breech presentations. Neither is it clear that an effort should be made to rectify a face presentation solely by external means, as is recommended by some writers. In the present state of our knowledge at least, such attempts should be made only by physicians of large experience.

EXPRESSION OF THE FETUS.

Mention is made of the method of expression of the fetus in vogue among the Japanese, Siamese, Digger Indians, Mexican Indians, Kalmucks, etc., and lately advocated by Prof. Bidder, of St. Petersburg, who reports eighty-one cases in which the results were more favorable than in forceps cases. This summary is already too long to permit of a consideration of the various procedures fully described in the paper, which will amply repay the student's careful study.

While upon this subject may be mentioned Dr. J. W. Singleton's (*St. Louis Medical and Surgical Journal*) strong advocacy of the prenatal abdominal bandage, applied simply and

equally from ensiform cartilage to symphysis pubis. He insists that it gives solid aid and comfort to the woman, and support to the intestines and uterus, especially in ante-flexion of the latter. An experience of twenty-five years confirms him in the value of this procedure.

PREGNANCY VOMITING.

Dr. J. Marion Sims contributes a paper on pregnancy vomiting to the *Archives of Medicine* (June, 1880), in which, after referring to the causes as suggested by Graily Hewett—flexure and malposition of the uterus; by Dr. M. O. Jones, of Chicago—granular erosion of the cervix; and by Dr. Copeman, of England—induration and contraction of cervix; he states that he also has resorted with success to the treatment proposed by these writers, viz: support for the flexed uterus, nitrate of silver applications for the erosion, and dilatation of the cervix when contracted. Copeman's method consists in gradually forcing the finger into the os and carrying it along till the first joint of the finger enters the cervical canal, taking care not to push it so far as to impinge against the os internum. Dr. Sims reports a case, the only one on record, in which the latter plan being fully adopted, a miscarriage resulted, showing that it was not devoid of danger. He attributes this result partly to the pushing of the fundus backward, by the hand on the abdomen, to prevent recession while the finger of the other hand was forced into the cervix, and partly to a tendency to miscarry.

In discussing this subject of morning sickness before the Berlin Medical Society, Dr. L. Rosenthal recognized three varieties: (1) the ordinary morning sickness; (2) the sickness following every meal, and lasting even after quickening, but not destroying appetite; (3) the rare form often accompanied with diarrhœa and salivation and failure of nutrition, and sometimes followed by death. Of the third variety, Paul Dubois saw 20 fatal cases, and of 118 cases given by Gueniot, 46 proved fatal. "The condition is doubtless dependent upon some abnormality of the uterus, and generally of the cervix;

[illegible]

the patient was cured. Dr. Hertzberg (Berlin), uses three grains of chloral in solution every two hours until vomiting stops; and, finally, Dr. W. W. Potter (*Am. Jour. Obstet., Jan.*, 1880), advocates absolute rest of the stomach, no food or drink being allowed by mouth; all aliments and medicines to be given per rectum.

No mention is made, in any of the references, to the use of strychnia, which I have found of signal service in a large proportion of cases; while in others it has failed completely. Nor of the viburnum prunifolium, which in many cases has proven an efficient uterine sedative. In a recent case of distressing pregnancy vomiting under my care, immediate, though temporary, relief followed upon placing the patient in Sims' position, and distending the vulva. The uterus was thus permitted to rise from the hollow of the sacrum, into which it was pressed. The symptoms returning in a modified degree were treated with the viburnum, which appeared to exert a decidedly favorable influence.

The variety of methods above mentioned clearly indicate the wisdom of studying the causation of morning sickness in any given case before attempting its treatment. If it be due to a fallen or flexed uterus, we cannot expect general treatment to have any immediate effect; and if there be simply a hystero-neurosis, local medication may aggravate rather than benefit.

DURATION OF PREGNANCY.

Dr. Geo. J. Engelmann (*St. Louis Courier of Med., May*, 1880), offers a contribution to the study of the duration of pregnancy in a report of three cases. In the first, there was but one coitus just before the anticipated menses (which did not appear), and twins were born 272 days thereafter. In the second, a fine healthy child was born 242 days after a first coitus, from which conception must have followed, as no other coitus took place for three weeks, and the child was too well-developed for a seven months' fetus. In the third, conception took place during menstruation—in the last days of the

prising rapidity in the subjects of dysmenorrhea and amenorrhea. In twenty-one cases in young girls under Dr. Jenks' observation, each was the subject of some uterine disorder. Six out of a family of eight girls were goitrous, and suffered decided increase of the disease during the establishment of the menses, but on the regular recurrence of the function the goitres disappeared. The functional congestions and disturbances of the menopause are favoring circumstances, and so also is pregnancy. In the latter the disease develops in the third or fourth month, and may even increase to a dangerous extent. It recedes after the close of pregnancy, only to increase again from a recurrence of a similar condition, or in rare instances to disappear entirely. Here it is obviously a sympathetic fluxion, which leaves the gland somewhat hypertrophied, whereas when it appears suddenly during labor it arises from mechanical causes. For a like reason, singers and players on wind instruments are predisposed to it. It is even found that the neck increases in size during coition, and that nursing may aggravate a goitre.

From these statements some points in the treatment are obvious. The goitrous should not nurse their children; all conditions tending to retard menstruation should be avoided, too frequent pregnancy guarded against, etc. Strict observation of hygienic laws should be enjoined. The remedial measures may be briefly mentioned: Iodine, especially by hypodermic injection; alcohol in the same manner; if the goitre be vascular, perchloride of iron injections; injections of ergotine are useful, and electricity has been productive of excellent results. Dr. Jenks has found muriate of ammonia to answer better, in goitre peculiar to women, than any other agent.

ACUTE INFECTIOUS DISEASES AND ABORTION.

An extract from a most interesting paper by Dr. Max Runge, on the etiological relations of acute infectious diseases to abortion, appears in the *American Journal of Obstetrics*. The

author finds that primary death of the fetus may be caused by increase of the temperature, disturbed placental respiration, transmission of infection to the fetus, and by anatomical changes in the placenta. A temperature of 107.5° to 108° F. is absolutely fatal to the fetus, while a temperature of 104° F. is dangerous, according to its duration. This was demonstrated by experiments on rabbits. In certain diseases (of heart and lung), when the blood fails to be decarbonized, the fetus is in danger; and when the patient is asphyxiated, the ovum dies before the mother. While in theory the question of the passage of the germs of infectious diseases through the placenta is not settled, it is undoubtedly proven that the fetus may be infected from the mother's blood in variola, and very probably in scarlatina, morbilli, intermittents, and vaccinia. When labor begins before the death of the fetus, it is not so easy to ascertain the causes; but they are to some extent the same as in the other class of cases. The indications are to treat symptoms—"Combat fever by all antipyretic means. Spur on the circulation by cardiac stimulants, and nourish the blood in every possible way."

TREATMENT OF THREATENED ABORTION.

With regard to the treatment of threatened abortion little is to be found. Dr. Jas. B. Hughes (*N. C. Med. Jour.*) reports seven cases in which the viburnum prunifolium appears to have been remarkably efficient. In several instances the premature expulsion of the ovum was repeatedly prevented in the same pregnancy. I can add my experience in favor of the value of this drug. In every instance in which the abortion had not progressed to extensive detachment of the ovum and dilatation of the cervix, the expulsion was prevented.

TREATMENT OF ABORTION.

A very wide divergence of opinion regarding the treatment of inevitable abortion is manifest in the various articles scattered through the journals. This was brought out mainly by

the paper of Dr. J. T. Johnson, read before the Obstetric Section of the American Medical Association, in 1880. That gentleman advocated the modern treatment as advised by Prof. A. R. Simpson and others, which comprehends the earliest possible removal of the ovum, by instrumental interference if necessary, in order that danger from septicemia should be avoided. He was seconded by a number of speakers, but on the other hand, an equal number advocated the old, or expectant treatment. Dr. Moriss remarking that "he thought the placenta should remain, as long as it did no harm; nature was quite competent to manage the great majority of cases of abortion occurring in the earlier stages of pregnancy. The matter of retained placenta is considered a needless bugbear in the eyes of many of the profession."

A middle course between the two extremes of non-intervention and speedy mechanical evacuation of the uterus seems to be the most rational, and may be thus stated; always bearing in mind that the two dangers to be feared are hemorrhage and septicemia. If the ovum cannot be saved, confine the patient to bed as before, and if no unusual hemorrhage, await the processes of nature. There is too much routine practice in the use of ergot. It may even retard the dilatation of the cervix. Much hemorrhage renders it advisable. At any time if the ovum be protruding from the cervical canal, remove it with the finger. If the os be not sufficiently dilated, and hemorrhage be decided, the tampon should be used, the preference being for the cervical, not the vaginal tampon. To apply this, the os is to be exposed by the speculum, and a sponge tent inserted, or strips of old muslin, or absorbent cotton, saturated in a one per cent carbolic acid solution, are to be pushed into the canal with a probe. The vaginal tampon may be employed to retain these, but it is not usually necessary. In a few hours the ovum and tampon will probably be expelled together. If not, the latter may be reapplied. It is only in a small proportion of cases that even the latter process is necessary, and much less frequently that curettes and hooks and ovum forceps are required. Some advise the use

of the finger to remove the ovum while yet in the cavity of the uterus, and profess to have no difficulty in accomplishing this manœuvre. It will require, in most cases, strong pressure of the uterus downward through the abdominal wall, and perhaps the introduction of the hand into the vagina; which cannot be done without an anesthetic. Several physicians of ability and experience doubt the expressed facility with which the finger accomplishes so much, regarding the process as by no means easy. As regards the use of curettes, spoons, bent wire, forceps, etc., no one objects, if after sufficient delay nature is found incompetent to effect delivery of the ovum or placenta, and danger from hemorrhage or septicemia threaten, or if portions of membrane or placenta remain attached to the uterine cavity, but there is undoubtedly a preference for one or other instrument according to the character of the case. Sharp instruments tear the mucous membrane and are to be avoided, if possible. The plan suggested by Dr. T. Parvin is an excellent one. Expose the os through the speculum; draw down the uterus with a Nott's tenaculum forceps, hooked in the anterior lip, and introduce Emmet's curette forceps, which may be opened slightly and closed upon any remnants of the placenta and removed.

Several writers refer most opportunely to a point too often neglected viz: the after-treatment of abortion. Most patients are surprised when counseled to remain in bed but a few days after the mishap; even physicians are not sufficiently careful in their advice—when undoubtedly the same necessities exist for so doing, as after confinement at term. Indeed, abortion is so fruitful a source of uterine disorders that it is questionable whether recumbency may not be of equal importance here as after labor.

I cannot leave this subject without venturing the belief that many cases of abortion are made serious by over-treatment, by too early instrumental interference; and that this result is accomplished by the routine use of ergot as much as by any other means. Certain it is that in my practice I have never met with the cases of septic poisoning of which we often

hear; and while I have had several cases of dangerous hemorrhage, I have had no deaths; and yet I have found but one occasion in which dilatation and the forceps were required.

ERGOT AND ITS SUCCEDANEA.

In regard to the action and uses of ergot and its succedanea, little is presented. The experiments of Dr. Peton (*Le Progres Medical*), lead him to conclude that ergot has a direct elective action upon unstriped muscular fibre, not only of the uterus but of the bladder and vessels, and this result is better obtained by its hypodermic use. Dr. F. Ganguillet (*Arch. f. Gynak.*), finds similar effects from sclerotinic acid (a principle extracted from secale cornutum), and arrives at the following conclusions: uterine contractions seemed more frequent after 15 grains of the acid; the duration of the effect was much increased by increasing the dose, but no other effect was produced. The action of the drug began to manifest itself one hour after its administration. Dr. Boissarie (*Annales de Gynecol.*), reaffirms the danger, which has lately been doubted, of the prolonged use of ergotine by the mouth. Its hypodermic administration he believes less injurious. Three cases of death from gangrene are noted.

A case of premature labor at seven and a half months induced by pilocarpin is reported by Dr. Wilmart (*La Presse Medicale Belge*). The third of a grain was injected subcutaneously every four hours for two days. On the third day a dead child was born.

ANESTHESIA IN LABOR.

The subject of anesthesia in labor was under discussion in the obstetrical societies of Philadelphia, San Francisco and St. Louis. In two societies, papers strongly advocating its use introduced the discussion. The arguments in favor advanced by Dr. W. H. Mays, of San Francisco, and others, were: anesthesia is as necessary to assuage the sufferings of childbirth as it is in surgical operations, and should be resorted

to in normal and abnormal labor. It is safer in obstetrical cases than in surgical cases. It does not diminish uterine contractions, but rather advances labor by lessening the resistance of the parturient canal. By relaxing the perineal muscles, it diminishes the danger of rupture of the perineum. It increases the flow of mucus in the vagina. It has no injurious effect whatever upon the child. On the other hand, death was said to have resulted in several instances, and quite frequently dangerous depression supervened. The principal objection, however, was the severe hemorrhage that often follows the use of chloroform. Many physicians objected to chloroform on this ground alone, having experienced its evil effects. With regard to the special anesthetic, some preferred ether, which though less effective is less depressing, but the large majority used chloroform. Dr. D. M. Barr, of Philadelphia, highly extolled a combination of three parts of ether, two of alcohol and one of chloroform, in which the depressing effects of the latter are counterbalanced by the exhilarating and stimulating effects of the former. This is very similar to the Billroth mixture, which was given by this surgeon for fifteen years without an accident. But deaths came at last to stop the unbroken line of successes. Dr. Barr pours about three drachms at a time in the inhaler, which he applies at the commencement of a pain. He makes the effect intermittent or continuous, and lightens or deepens it, as indicated. Dr. Turnbull, of Philadelphia, had administered hydrobromic ether in tablespoonful quantities in one case with gratifying success. Five tablespoonfuls were taken. Dr. A. F. Watkins (*American Practitioner*), prefers chloral in fifteen grain doses repeated in twenty minutes, if necessary, with perhaps a smaller dose in an hour or two. He finds this practice especially serviceable in cases where, previous to the rupture of the membranes and the complete dilatation of the cervix, the pains, though severe, are short and ineffectual. The usual practice is to administer an opiate, but this suspends labor, etc., etc. This is certainly not *my* experience. Morphia in combination with camphor, while it controls pain and

the exhibition of labor, actually stimulates uterine action, and in the large majority of cases markedly hastens the delivery.

QUININE IN PREGNANCY.

The editor of the *Louisville Medical News* says: "We give quinine always for some days before and after delivery, and have done so for six or eight years. Our own experience, fortified by that of several friends in full practice, leaves no doubt in our mind that this practice is an almost absolutely certain means of preventing cracked nipples, abscess of the breast, milk leg, puerperal fever, and the other annoyances and dangers incident to the pregnant and post-parturient state."

POSITION IN LABOR.

An exhaustive paper on "The instinctive (or natural) and physiological position of women in labor," was read by Dr. Geo. J. Engelmann at the late session of the American Gynecological Association. To one accustomed to look upon the dorsal or lateral positions as the only ones the woman should assume while in labor or at birth, the tabular statement presented showing the many positions that are adopted by the different races of the world must appear strange indeed. The recumbent position, in bed, is by no means general, and the side position is almost peculiar to England. The semi-recumbent position is assumed in Italy, Germany, Syria, and Japan, by the native races and tribes in various parts of the United States, in Mexico, Chili, etc. The sitting position upon a chair, rocking chair or stool, on the lap of the husband, or other person, or in a hammock, is adopted in parts of England, Scotland, Wales, Germany, Russia, Italy, Greece, China, Palestine, Syria, India, Turkey, Arabia, in several countries of Africa, by the negroes in portions of the United States, and by some of the Indian tribes, in Venezuela, Australia and Sandwich Islands. In many localities in Italy, Germany, Russia, Scotland, Japan, and North Australia, and among some Indians and negroes of the United States, the patient is

suspended, or partly suspended, or hangs upon the neck of an attendant. The kneeling position is quite common, and is found to be practiced in Spain, Italy, Russia, Greece, Scotland, England, Wales, Kamschatka, Mongolia, Persia, Ethiopia, Abyssinia, Indian Territory, various parts of the United States, Mexico, Nicaragua, and New Zealand. The squatting attitude is taken in Russia, Arabia, Persia, Indian Territory, Mexico, Guatemala, Polynesia, and West Micronesia; and patients even stand while delivered in France, Germany, India, Ethiopia, East Africa, Indian Territory, Mexico, and Philippine Islands. Finally, the knee-chest and knee-elbow positions are taken by some Indian tribes of the United States. The author concludes that the instinct of the patient generally inclines her to assume the semi-recumbent position, and that this is accordingly the one which should generally be adopted. As between this and the English lateral position, there has never appeared to me any doubt of the superiority of the former.

Matthews Duncan has shown that gravity alone is sufficient to effect delivery in some cases, and that in no position of the body—either dorsal, semi-recumbent, sitting, standing, kneeling, squatting, etc.—save upon the side, is the axis of the parturient canal horizontal. The semi-recumbent position places the axis of the brim of the pelvis more nearly perpendicular, and hence in this position the greatest assistance is gained from gravitation. At the same time it must be remembered that Schroeder has demonstrated that in semi-recumbency the larger proportion of ruptures of perineum take place.

MECHANICAL DILATATION OF THE OS.

Referring to tedious labor from slow dilatation of the os, especially when the membranes rupture early, and to the inadequacy of the usual modes of mechanical dilatation, Dr. Jas. Braithwaite (*Retrospect*, *July*, 1880), proposes the use of the indices of both hands, as follows: The patient being upon the left side, the right index is introduced into the cervix, its palmar surface being directed toward the sacrum.

The left index is next passed along the back of the right with its palmar surface directed toward the pubes, and the tip inserted in the cervix. The two fingers are now back to back. By slight separation of the terminal phalanges, the os may be dilated at pleasure. Subsequently two fingers of each hand may be inserted. The fingers being soft and sensitive, the dilating force can be accurately gauged so as not to injure the os. Five cases of successful employment of this method are detailed.

HOT WATER IN RIGID OS.

Dr. Albert H. Smith (*Phil. Med. Times*), urges the use of hot water injections to relax the cervix in tedious labor, and thus hasten delivery. He has found the hot douche thoroughly and rapidly effectual in the first stage of normal labor at full time, almost equally rapid in a rigid condition in an accidental premature labor, and more slowly, though with ultimate effect, in the induction of labor in a quiescent uterus. The patient being upon her back, and upon a large bed-pan, two or three pints of water of a temperature of 110° to 115° are thrown with a Davidson's syringe against the os. In hemorrhages following labor, the same plan is advocated; in these cases, however, the pipe of the syringe should be introduced within the uterus. It is better to add carbolic acid or Labarraque's solution to the water.

EXPRESSION OF THE PLACENTA.

Dr. Max Runge (*Med. Times and Gazette*) in a communication to the Obstetrical Society of Berlin, takes exception to the current teaching regarding the management of the third stage of labor. He holds that the *immediate* expression of the placenta is liable to force it out before its voluntary separation, and especially before the separation of the membranes, portions of which may be left behind; also, that hemorrhages are more frequent after this plan. A delay of fifteen minutes, at least, should take place before expression is resorted to.

Since the adoption of this rule by the Strasburg Obstetric Clinic post-partum hemorrhage has become of very infrequent occurrence.

HOUR-GLASS CONTRACTION.

Several cases of hour-glass contraction, so called, were reported during the year to the New York and Philadelphia Obstetrical Societies. The drift of opinion seemed to favor the view that such cases are due to spasmodic contraction of the internal os. Any one who has attempted to remove the placenta or membranes lodged in the cervix in an abortion, will appreciate this explanation of hour-glass contraction.

Dr. A. C. Fosdick (*Obstetrical Gazette, Sept.*, 1880), mentions a curious instance of the condition occurring prior to a delivery. A multiparia in labor for some time—the membranes having ruptured—was examined digitally. A smooth, tolerably solid, round substance, three inches in diameter, filled the vagina and pressed the perineum. The external os was fully dilated. Carrying the hand along a funnel above the brim of the pelvis a ring two inches in diameter was reached, above which was the presenting head, the rounded body in front, being a fibroid tumor attached to the head, and weighing three pounds. The ring was too firm to be dilated until nausea was induced by ipecac.

In the treatment of hour-glass contractions Dr. A. H. Smith has found hot water injections (115°) answer an admirable purpose, relaxation taking place at once.

EXTERNAL VERSION.

In illustration of Dr. Munde's paper, epitomized in a former part of this report, may be mentioned the conclusions of Dr. Hubert (*Lyon Medicale*) regarding version by external manipulation, upon an experience of thirty-four trials, in all but one of which he was successful. (1) External version should be done before labor begins, or as soon as possible after it has set in. (2) It may be practicable, however small the amount of

liquor amnii, and sometimes even after its escape. (3) As a rule we should bring down the pole of the fetus which is nearest to the center of the pelvis. (4) The mother's abdomen should be relaxed to the utmost, and the manœuvres should be practiced in the intervals between the pains. (5) The contra-indications of the operations are few, and its advantages are indisputable.

TEN CONSECUTIVE BREECH PRESENTATIONS.

Ten consecutive breech presentations in the same woman are reported by Dr. R. Winslow (*Amercan Jour. Med. Science, April*, 1880). All but one child (the fourth) were stillborn. A narrowing of the conjugate diameter undoubtedly determined this presentation, and also delayed the expulsion of the child until death supervened.

SHOULDER PRESENTATIONS.

Dr. Pinard (*Annales de Gynecologie*), thinks the amputation of the prolapsed arm when the child is dead, in shoulder presentations, has been unjustly condemned. The amputation of the procident arm will often render version possible, when otherwise embryotomy would be required. Dr. Pinard has known many times MM. Pajot and Stoltz to perform version in cases in which it was previously thought impossible, after simply amputating the upper extremity. Of course, the procedure is inadmissible if the child be alive.

THE FORCEPS.

Much comment has followed the advent of the Tarnier forceps, a rather complicated apparatus designed to facilitate delivery when the head is at the superior strait. Professor Braun (*Wien. Med. Wochenschr*), from an experience of twelve applications, finds that this instrument is much more difficult of introduction and management than the ordinary forceps, and that its use is not less liable to result in rupture

of the perineum. He recommends it only to the experienced obstetrician, and in cases of high operations. Dr. W. T. Lusk, in a discussion in the N. Y. Obstetrical Society (*N. Y. Med. Journal*), from an experience in fifteen cases, was sure that when the head was in the brim, he could deliver in a few minutes, where formerly with the ordinary curved forceps half an hour or more was required. Dr. T. Gaillard Thomas thought that the forceps of Tarnier was a great improvement on the older instruments, yet he did not believe that it would ever come into general use. Dr. Lusk regarded version, when the head was above the brim, as so much safer than the forceps, that he hoped it would be generally adopted. He presented statistics of competent operators, showing that, with the conjugate diameter between two and three-quarters and three and a half inches, the expectant treatment gives the best results, with version next. Thus in 407 spontaneous deliveries, only 53 children were lost, and twelve mothers died of puerperal disease; in 43 versions, 12 children were lost and no mothers; while high forceps operations show a mortality of sixty per cent of children and forty per cent of mothers.

In corroboration of this view, Dr. H. S. Anderson (*Edinburgh Med. Jour. June 6th*, 1871), says: "I have as a rule turned not only in cross births, but in almost all cases where any other practitioners would have used the long forceps, and with results so satisfactory to my mind, as fully to justify my choice. * * * In malposition of the head, I never hesitate to turn when the head has not become entangled in the pelvic bones; and I have not found, when due care is exercised, that the life of the child is much jeopardized in turning." This was the practice of Sir Jas. Y. Simpson, but Dr. Robert Barnes says, that it was the result of not having forceps long enough to reach the head, and turning was the only alternative. Differing from Lusk, Anderson and Simpson, he writes: "Here in London, Dublin, and in the larger towns, if the head is upon the brim of the pelvis and accessible to the long forceps, we prefer dealing with the child's head first instead of turning it." Dr. Barnes (*Lancet*), strongly prefers the forceps in

lingering labor, to ergot; and Dr. Lombe Atthill (*Obstetrical Journal*) asserts that the latter is absolutely abandoned in the Rotunda Hospital. The early use of the forceps, that is their use through the partially dilated os, is especially condemned by this author, and the editor of the *Medical Times and Gazette* shows that the maternal mortality at the Rotunda under Johnston, who used the forceps "early," was more than double that under the conservative Collins. The same fact was noted regarding the children; 1 in 11½ died under Johnston and 1 in 58½ only under Collins.

In an extended discussion on the use of the forceps in the Obstetrical Society, of London, Dr. Barnes formulated his belief as follows: (1) "In lingering labor, where the head is in the pelvic cavity, the forceps is better than its alternatives, (ergot, version, craniotomy). (2) In lingering labor, when the head is engaged in the pelvic brim, and when it is known that the pelvis is well formed, the forceps is better than its alternatives. (3) In lingering labor, when the head is resting on the pelvic brim, the liquor amnii discharged, and it is known either by exploring with the hand or by other means, that there is no disproportion, or only a slight degree of disproportion, even though the cervix uteri be not fully dilated, the forceps will generally be better than its alternatives. (4) In proportion as the head is arrested high in the pelvis, in the brim or above the brim, the necessity, the utility and safety of the forceps become less frequent."

Commenting on this discussion, the editor of the *British Medical Journal* writes: "The general tendency on the part of the speakers, more especially on the part of those who had the largest share of difficult midwifery, was to prefer the use of the forceps to ergot, whenever a choice lay between these two; and the extended use of the forceps as the best means of lessening resort to craniotomy; for example, the application of the long forceps to the head above a contracted brim, instead of perforating the child's head, or turning, as was the practice before the era of the long forceps. Indeed, nothing has ever been brought to light more clearly in any discussion,

than has the fact, that in proportion as the long forceps has been improved by lengthening it, and by adding the pelvic curve, so has its accompanying use supplanted or eliminated ergot, turning and craniotomy. The result of this has been a constantly diminishing ratio of maternal and fetal mortality. * * * There is nothing that ergot can do that cannot be done more safely and effectively by the forceps. The good results attending the substitution of the forceps for ergot, are strikingly set forth in the experience of Mr. Alderson. When this gentleman began practice, he never, or at all events hardly ever, used the forceps at all, but he used ergot frequently. He had an enormous number of stillbirths. Gradually he cultivated the use of the forceps; and as a natural result his stillbirths diminished, until now, when he applies the forceps in all those cases where formerly he would have administered ergot, he has no stillbirths at all. * * * The discussion has, we believe, given the *coup de grace* to the antiquated idea, prevalent in the days of Dr. Robert Lee, who performed craniotomy in one hundred and eighty-six cases, and used the forceps in only fifty-three cases, that the forceps is a dangerous instrument. No instrument in the whole range of medicine has saved more lives and more human suffering than the forceps, the invention and perfection of which constitute one of the chief glories of English midwifery."

In closing this subject, it may be stated that Dr. Jos. Kucher (*Wien. Med. Wochenschr*), recommends that the application of the forceps to the after-coming head in breech cases be discarded, and traction and expression be relied upon, as specially advised by Penrose and Goodell, of Philadelphia. He makes this recommendation on the experience of 6,000 labors in the last two years.

Several modifications of the Tarnier instrument have already been advised; one by Dr. J. Bartlett (*Chicago Med. Jour. and Exam., March*, 1880), with a loose lock, which he asserts has many advantages over the ones now in use; another by F. Hilliard (*British Med. Jour. Feb.* 21st, 1880), and a third by Dr. J. H. Burge (*Proc. of Med, Soc. of Co. of Kings,*

March, 1880). The latter consists of a single handle into which two blades are fitted after their introduction, and fastened by a milled nut. The main advantage seems to be that any number of blades of different shapes may be fitted to the same handle.

CESAREAN SECTION.

The journals teem with reports of cases of, and papers upon, Cesarean section and its modification, the Porro operation. With regard to the former, Dr. W. T. Lusk (*Am. Jour. Obstet.*), first presents Michaelis' figures: 258 cases, with 54 per cent of recoveries; Mayer's 1,605 cases, with the same proportion of successes; Dufeilhay's 84 cases (published between 1845–49), with 57 per cent of recoveries; and finally, Dr. R. P. Harris' 128 American cases, with 44½ per cent of women saved; and then dropping the numerical method shows the astonishing difference in mortality between hospital and private practice. Michaelis found that 25 of 36 operated upon in lying-in hospitals died, whereas only 29 of 60 operated upon in private practice died. According to Kayser, the mortality in hospital cases was 79 per cent. In Paris, not a successful case occurred in eighty years, while in various rural districts, of 58 cases nearly 80 per cent recovered. The other most important element was the timely resort to the operation. Thus, Dufeilhay's statistics showed that when the operation is performed before the woman becomes exhausted, 81 per cent recovered, and Dr. Harris collected 28 cases of timely operation with a saving of 21 mothers and 23 children.

Some operators have been remarkably fortunate, others equally unfortunate. Thus, Hoebecke operated 16 times, saving 11; Maslieurat-Lagemard, 6 times, with no deaths; and Prevost, of Louisiana, 4 times, with 1 death; Dr. Previtali, of Italy, lost 17 in 19 operations; Dr. Morisani, of Naples, 25 in 27 operations; Dr. Beluzzi, of Bologna, all but the last of 12 cases, and Dr. Greenhalgh, all but 1 of 8 cases.

An interesting record of Cesarean section twice successfully performed on the same patient is presented (*Am. Jour. of*

Obstet.) by Dr. S. S. Lungren, of Toledo, Ohio. The mother lived after both operations, and both children were saved. A table compiled from various sources appended to the paper, records 119 multiple operations upon 48 women with only 8 deaths. In 3 instances the operation was performed 7 times on the same woman; in 2 cases, 6 times; in 1 case, 5 times; in 3 cases, 4 times; in 5 cases, 3 times; and in the balance, twice. This astonishing result is due, largely, to two causes—a tolerance of the operation after its first performance, and a timely resort to the operation.

Dr. Lungren endeavors to show the statistical relations of Cesarean section to other operations which may take place, in the following table, taking one hundred operations as the standard:

	AUTHORITY.	Operations..	Deaths....	Mother.....	Child.....
Unassisted tedious labor.....	Mr. Philip H. Harper.	100	24.54	4.54	20.
Premature labor.....	M. Figueira.....	100	42.20	2.14	40.6
Version.....	F. Churchill.....	100	40.14	7.14	33.
Forceps.....	F. Churchill.....	100	23.12	3.12	20.
High forceps operation or delivery at pelvic brim, all cases	Harold Williams....	100	101.30	39.48	61.82
High forceps—"timely".....	H. Williams.....	100	88.90	30.3	58.6
Cesarean section—all cases....	F. Churchill.....	100	82.20	53.6	28.6
Cesarean section—all cases(125)	H. Williams.....	100	66.50	48.8	17.6
Cesarean section, within 24 h'rs after labor has begun.....	H Williams.....	100	28.	20.6	7.4
Cesarean section, more than once on same person.....	Churchill, Stolz, and R. P. Harris.	100	14.23	6.83	7.4
Cesarean section—"timely." ..		100	20.63	13.24	7.4
Craniotomy..	F. Churchill.....	100	120	20.	100.
Craniotomy.....	John S. Parry.....	100	137.5	37.5	100.

Before leaving this subject, a Cesarean section by Dr. Kaltenbach (Germany), for large medullary sarcoma of the rectum may be mentioned. The tumor left an opening of but one and one-half inches; the child was dead; the mother had been in labor for three days and a half, and died in six days, of septic peritonitis.

Dr. Storch, of Copenhagen, made post-mortem Cesarean section on a woman, the subject of albuminuria, cardiac disease, dyspnea, edema and hydramnios, who died rather suddenly. Section was made ten minutes after death, and an asphyxiated child removed in a minute. An hour and a half artificial respiration restored it.

THE PORRO OPERATION.

Remarkable results have been obtained, in the aggregate, from the modification of Cesarean section, known as the Porro operation, or technically as gastro-hysterectomy, or Cesarean ovaro-hysterectomy; and still more remarkable comparative results have been obtained in the hands of certain operators. Thus, Dr. R. P. Harris, of Philadelphia (*Am. Jour. Med. Scie., April and July*, 1880), has, after infinite care, collected records of 50 operations—two in the United States—with 21 recoveries of the mother and 43 living children. Since this statement, I find 6 additional cases reported in the journals, with 3 mothers saved, and 3—possibly 4—children, making the record to date 56 Cesarean ovaro-hysterectomies, with 24 mothers saved, or 43 per cent; and 46 children born alive, or 81 per cent; or, of the 113 lives, 70 saved, or 62 per cent.

The Cesarean operation—old style—has been very fatal in Italy; Prof. Chiara stating that of 62 operations performed by Porro, Billi, Lazzati and himself, all proved fatal save three. Of the 25 operated on by Porro, Lazzati and himself, none recovered; whereas, of the five operated on by the Porro method by Porro (1) and himself (4), 3 recovered, and all the children were saved.

The Porro modification of Cesarean section consists in the constriction of the uterine neck, after the child is removed by abdominal and uterine section, until hemorrhage ceases, after which the uterus is drawn from the cavity and amputated at the neck, the stump being secured like the pedicle in ovariotomy, in the lower part of the wound. Drainage tubes through Douglas' cul-de-sac and the vagina are inserted. While Prof.

Porro, of the University of Pavia, was not the first to suggest or even to perform this operation, his was the first successful case, and it was no doubt undertaken without the knowledge that Dr. H. R. Storer, of Boston, had operated in the same manner in 1869. There had been no intention, however, in Dr. Storer's case, to amputate the uterus at the inception of the operation. This was a suggestion of the moment, to stop the excessive hemorrhage. The child had died sometime before, and the mother died in sixty-eight hours.

THE MULLER OPERATION.

Still another modification of these operations has been adopted by Prof. Muller, of Berne. It consists in the enlargement of the abdominal incision, the turning out of the gravid uterus and the constriction of its neck, prior to the removal of the child. The uterus is then incised, the child removed, the uterus amputated, and the stump secured. The turning out of the gravid uterus is of easy accomplishment, since the conjugate diameter of the superior strait is nearly always shortened, but the operation necessitates a much larger abdominal incision, which is worthy of consideration if Spencer Wells' rule "the larger the incision the greater the danger," be correct.

Dr. Elliott Richardson (*Am. Jour. Med. Scie.*, *Jan.*, 1881), who reports the first successful case of this operation in this country, says: "Nothing could be more strikingly beautiful to the surgeon, than the Muller operation. It is at the same time clean, safe, and to any one skilled in the use of the knife, easy to perform. It is clean, because the abdomen is closed before there need be any flow of blood, and not a drop of it need enter the peritoneal cavity; safe, because all hemorrhage from the general system may be entirely avoided; and easy to perform, because every step of the operation is done in sight. There is no danger in this method of leaving an ovary behind, because one can see every part he wishes to remove."

In his discussion of the Porro operation, Dr. Isaac E. Taylor (*Am. Jour. Med. Scie.*, *July*, 1880), records his own unfor-

tunate, but almost successful case: "A living child was removed in seven minutes from the commencement of the operation, which was satisfactory in every particular. On the seventeenth day, however, phlegmatia dolens appeared in the calf of the right leg. It was soon subdued, and the patient was so far recovered that she got up without assistance—but against orders—and sat in a chair for some time. Shortly after, great dyspnœa supervened and she died of cardiac thrombosis in three hours."

LAPARO-ELYTROTOMY.

Of Prof. Thomas' operation—laparo-elytrotomy—but one new case is recorded (*Am. Jour. Obstet.*, *Jan.*, 1880). This is by Dr. Walter R. Gillette, of New York. The woman was a dwarf, 23 years of age, in labor with her first child. The conjugate diameter of the superior strait measured one and a half inches. It will be recollected that this operation consists: First, in a long incision from the anterior superior spinous process of the ilium of the right side to the symphysis pubis; second, the pushing of a sound through the vagina into this incision, and the enlargement of the opening by tearing; third, the dilatation of the os uteri; fourth, the pushing of the fundus uteri to the left side, and finally the delivery of the fetus through the incision in the abdomen. The abdominal cavity is not entered. In the case mentioned, it was found impossible to apply the forceps; turning could not be accomplished, craniotomy failed, but delivery was finally concluded by aid of the cranioclast. The patient recovered rapidly. Dr. Gillette's case is the eighth of this operation, six being performed in New York, and two in England. Four women and six children were saved, or 62½ per cent; but two children were dead before the operation, one woman was moribund and two nearly so; while the fourth had extensive cancer in the pelvis. This showing is certainly excellent for laparo-elytrotomy.

EXTRA-UTERINE PREGNANCY.

I find in the journals, reports of twenty cases of extra-uterine pregnancy, eight occurring in this country and twelve in Europe. Nothing new is elicited by them, the classic work of the late Dr. J. S. Parry, of Philadelphia, being likely to anticipate anything in this direction, for some time to come. Of this number, two died without operation—one a mother nursing her seven months' child; another discharged the fetus piecemeal by rectum, and recovered; three had labor pains, great depression, etc., after the ninth month, from which they recovered, and ultimately abscesses presenting at the umbilicus, they were opened, discharging portions of the fetus. Abdominal incision was then performed, and the fetal remains removed. Each of these recovered. In thirteen, abdominal incision or laparotomy was practiced, with death to the mother, probably in every case, although this fact is not stated in three instances. Three children were born alive. In the remaining case, Dr. H. G. Landis (*Cin. Lancet and Clinic*), directed a galvanic current through the tumor—a three months' cyst—gradually increasing its force during a ten minutes sitting, and repeating the operation for five days. The embryo was destroyed, pain ceased, menstruation returned, and the tumor gradually diminished in size. Dr. Landis reports that this is the fifth operation of a like kind, with uniform success. Dr. Goodell, of Philadelphia, reports (*Med. Record*) a lucky escape, illustrating the great difficulty of diagnosis in these cases. He was about to operate by laparotomy in a case diagnosticated extra-uterine fetation, when he noticed contraction and relaxation in the tumor, and inferred that it contained unstriped muscular fibre. The operation was deferred. In a few days his patient fell in labor, and was delivered *per vias naturales* of a living child. Examination thereafter showed a uterus bicornis, which accounted for the probe entering the cavity of the uterus for such a distance in the preliminary examination, since it had entered the unoccupied horn of the uterus.

RUPTURE OF THE UTERUS.

The journals record twelve cases of rupture of the uterus, and one of the vagina, nine of which occurred in the United States. Two cases died undelivered, six were delivered *per vias naturales*, and four by laparotomy; all of the latter died. Of the three mothers who recovered, in two the peritoneal covering had not been torn through; in the third, the child was removed from the abdominal cavity whence it had escaped, and carbolized injections were thrown in through a drainage tube whenever the temperature rose to 104°. This latter was the only case of complete rupture which recovered.

Dr. R. P. Harris makes the pertinent inquiry: "If a woman has ruptured her uterus during labor, what should be done in order to save her life?"—the title of a statistical paper in the *American Journal of Obstetrics* for October, 1880. That the question is one of vast importance is seen from his estimate of three hundred cases of rupture in the United States annually. Dr. Harris not only agrees with Trask, Playfair, Leishman, and others, that when the child has escaped into the abdominal cavity, laparotomy is the operation of *election*, but he strongly advocates the same operation even though the child may readily be delivered *per vias naturales*, holding that the fatal result is far more assured by permitting the blood and secretions to remain in the cavity, than by the section of the abdomen to cleanse it. In the light of the extraordinary success of ovariotomists, and notably of Keith, who saved 97 of his last 100 cases, he considers the simple division of the abdominal wall as nothing in comparison with the retention of putrefying blood clots and secretions. Dr. Harris has collected the histories of 40 cases of laparotomy for rupture of the uterus in the United States, probably all that have taken place in this country, and he finds that 21 recoveries took place, or nearly 54 per cent, a result which certainly justifies him in the opinion as to the value of the operation in this class of cases.

PREGNANCY AND ADHESIONS AFTER OVARIOTOMY.

Dr. Walter F. Atlee (*Am. Jour. Med. Sci., Apr.*, 1880), relates an interesting and singular case, where mother and child died during labor from difficulties attributed to shortness of the pedicle secured by a clamp, in ovariotomy. A cystic colloid of the left ovary, nine pounds in weight, had been removed in 1875. The very short pedicle was secured by clamp—recovery was rapid. One small place about the center of the scar never healed, and through this (the pedicle) the patient menstruated. Having become pregnant, in February, 1880, she was taken in labor. Though in labor five days, the os had dilated to the size of a quarter of a dollar only. Digital dilatation was resorted to and the forceps applied—occiput to left sacro-iliac synchondrosis, and body back forward, as it should be in first position of the vertex. It was impossible to make the head advance. After much fruitless effort, the child was found to be dead, and the mother, having lost forty ounces of blood and taken twelve ounces of ether, died shortly after, undelivered. The difficulties were attributed to irregularity of contraction in a deformed womb, in consequence of the left horn being fastened by a very short pedicle to the abdominal wall just above the pubes.

Dr. Robert P. Harris, of Philadelphia (*Am. Journal of Obstetrics*), makes this case the starting point for an inquiry, as to whether such adhesions complicate subsequent gestation and parturition. He makes reference to a number of cases of dystocia, reported by Dr. Alfred Hosmer, of Massachusetts, in 1878, as due to tetanoid constriction, or as he afterward termed it, ante-partum hour-glass contraction of the uterus. In all these, delivery was effected during life—by Cesarean section in one instance. But, although extensive inquiry was instituted, Dr. Harris has not been able to find the counterpart of Dr. Atlee's case. Those consulted were the New York Obstetrical Society, Dr. John L. Atlee, Mr. T. Spencer Wells, Dr. Thos. Keith, Dr. T. Matthews Duncan, and the works of Simpson, Barnes, Hewitt, Beatty, Thomas, Byford,

Atlee, and Peaslee. In the further discussion of the subject, Dr. Harris shows that undoubtedly abortion and premature labor may be caused by a variety of adhesions, while at the same time it is equally positive that the gradual enlargement of a gravid uterus may release old inflammatory adhesions.

In the Obstetrical Society of New York, Dr. Fordyce Barker related the case of a lady in convulsions, in whom delivery was delayed for hours by a firm cicatricial band, like a whip-cord, at the inner os. Its linear extent was about half the anterior portion of the cervix.

The patient had been under local treatment three years before marriage. Dr. Barker was satisfied that a portion of a stick of nitrate of silver had been previously introduced and left in the cavity of the cervix, where it gave rise to the condition met with at the time of labor. Several members of the Society had seen cicatricial tissue in the cervix result from applications of nitrate of silver, but none had seen delivery retarded by it.

Dr. T. A. Emmet referred to the case of a woman whose vaginal canal was a mere sinus, which had to be dilated that he might repair a vesico-vaginal fistula. Nine months afterward, when in labor, Dr. Barker could not find any vagina, but later on the vagina softened and dilated, and formed no impediment to labor. Dr. Walker alluded to a similar case, the vaginal canal at the cicatrix being no larger than a nickel cent, and yet in labor it so softened as to offer no obstruction whatever.

The question has been raised as to how far the repair of lacerations of the cervix uteri will influence the dilatation of that canal in labor; whether, in fact, the cicatrices will offer any obstacle to delivery. Dr. Janvrin (*Am. Jour. Obstet.*) has recorded a case in point. A woman thirty-six years old, a multipara, who had been operated on two years before for a lacerated cervix, was in labor twenty-four hours with very powerful pains, and the cervix had only a pin-hole opening. The hot douche was used without avail. Chloroform was then given and the cervix incised on both sides with a bistoury.

Dilatation was continued with the fingers, and delivery completed with the forceps. This is the only case on record in which a cervix previously lacerated and repaired by operation, failed to dilate during labor.

RETRO-FLECTION OF THE GRAVID UTERUS.

A number of cases of retro-flection of the gravid uterus are cited by Dr. Gustave Veit, of Bonn (*Am. Jour. Obstet*). The usual symptoms presented. As to treatment, the first question is, if reposition be possible. In ordinary cases, the bladder can be emptied by catheter; after which, attempts at reposition are always effective if first begun in the lateral decubitus from the vagina, and completed in the side or knee-elbow position from the rectum. Should this fail, there remain only the induction of abortion, paracentesis of the bladder and puncture of the uterus. Paracentesis of the bladder with a fine trocar offers but little danger. Aspiration has been performed without harm. Puncture of the uterus through the posterior vaginal wall, if properly performed, is not dangerous.

ENLARGED FETAL BLADDER.

Prof. Cornelli reports (*Med. Times and Gazette*) a case of difficult labor from distension of the fetal bladder. The abdomen of the mother was enormously distended, measuring 46 inches. It was almost impossible to deliver the child's body after the head escaped. Its abdomen measured nineteen inches in circumference, the bladder being enormously distended with urine.

CONTRACTED PELVIS.

Dr. P. Mueller, of Berne (*Am. Jour. Obstet.*), presents a contribution upon the subject of contracted pelvis. His observations upon 1,177 cases examined in Berne, Switzerland, show 16 per cent of cases of contracted pelvis. Of these, 95 had flat pelvis, 88 had generally contracted pelvis, 2 were osteo-

malacic, 2 were obliquely contracted, and 4 were funnel shaped. His conclusions are:

(1.) In the canton of Berne, Switzerland, equally contracted pelves are more frequently met with than elsewhere.

(2.) Rhachitism is the chief cause in producing this form of pelvis contraction.

(3.) In a good many cases this form of pelvis contraction is associated with cretinism.

(4.) Fortunately in most cases, the fetus is small enough to considerably lessen the danger otherwise incident to this pelvic deformity.

PLACENTA PREVIA.

To the *Am. Jour. of Obstet.*, for October, 1880, Dr. E. W. King, of Indiana, furnishes a statistical paper on placenta previa, of over fifty pages. This paper is based on the report of 240 cases from the practice of physicians of Indiana. Of mothers, 22.5 per cent died; of children, 57.2 per cent, or considerably over one half, died. So far as reported the number of premature and term deliveries were almost equal, but the mortality to mothers was nearly double at term, although that of children was somewhat less. Of 219 cases, 81 were partial, with a mortality of 7 per cent for mothers and 41 per cent for children; and 138 were complete, with 28 per cent of deaths of mothers and 66 per cent of deaths of children. It is praticularly interesting, however, to consider the influence of treatment upon the result, and the following statement is epitomized from the author's numerous tables:

MODE OF TREATMENT.	No. Cases.	Per cent of Deaths of Mothers.	Per cent of Deaths of Children.
Total cases	240	22.5	57.2
Without treatment	33	33.	54.
Total cases with Ergot	75	16.	53.
With Ergot alone	14	14.	64.
With Ergot and Tampon	30	20.	37.
With Ergot and Version	21	9.	52.
Rupture of Membranes	24	8.	22.
Entire Detachment of Placenta	22	18.	77.
Forceps	10	30.	60.
Total cases with Tampon	73	25.	53.
With Tampon alone	12	8.33	33.33
With Tampon and Version	34	36.	62.
All cases of Version	115	23.5	60.
Version alone	63	22.	57.

A judgment cannot be clearly formed from these figures alone, since the dilatability of the os, amount and rapidity of hemorrhage, previous condition of the patient, period of pregnancy, promptness of treatment, etc., must enter into the calculation. Indeed, it is not clear that any special line of treatment can be deduced from these statistics. The mortality in the cases treated with ergot and other means combined, and also by rupture of the membranes, was decidedly smaller for both mother and child than the average, while in the cases treated by ergot alone it was high for the child. About an average mortality occurred in the cases treated by version combined with other measures. Version, uncombined, gave better results. The cases treated with the tampon resulted in a higher death rate. Whether from its inefficient application or otherwise, Dr. King asserts that the success of the tampon in controlling hemorrhage does not clearly appear. He says: "One thing indicating its inefficiency is the fact that some authors will urge strongly in favor of simply the introduction of a small piece of sponge, or some such article, in the vagina against the os uteri, that the only object desired is to assist in the formation of a coagulum which will arrest hemorrhage, while they denounce the thorough packing of the vagina as unnecessarily severe. Others, with equal pertinacity, advocate completely filling the vagina, the application of a T and abdo-

minal bandage, and thus mechanically restraining the hemorrhage, emphatically alluding to the inefficiency of simply a coagulum. Now, if a measure can be urged so strongly by advocates of the extremes in their method of its use, both claiming to obtain the same results, may not the skeptical entertain some doubts of its utility in any manner?"

No statistics of the treatment of placenta previa by the induction of premature labor, as advocated by Greenhalgh, Thomas and Parvin, are presented, nor are any cases given in which the plan of partial separation, as urged by Barnes, was instituted. The latter writer (*Lancet*) strongly objects to hasty delivery when the os is not yet dilated. He says cases abound in which lacerations and fatal traumatic hemorrhage have resulted from forcible entry of the hand. And to immediate injury must be added the subsequent danger of septicemia and metritis. While the induration of the cervix in placenta previa may not be pathological, as claimed by Dr. Roper, it is pathological in so far as it occurs in an abnormal situation. There is a transudation of serum into the tissues, which becomes the source of hyperplasia, and thus the uterine wall is not only greatly swollen by the expansion of the vessels, by the growth and infiltration of tissues, but it may be hardened by the condensation of effused serum.

"The lesson to be derived from these anatomical and physiological facts, enforced as it is by clinical experience, is to distrust the old practice of the *accouchement force*. It is unscientific, violent—one might say, brutal—and dangerous. We must adopt methods more rational and safe. We must give time for the cervix to expand; remove the obstacle to its expansion which the adhesion of the placenta over the os internum presents, by detaching it from this region; expand it gently by water pressure if need be, not deliver until the parts are fairly dilated, and if turning be indicated, accomplish this by the bipolar method, which renders the introduction of the hand unnecessary."

Dr. R. J. Nunn reports to the *American Journal of Obstetrics*, a case of central placenta previa in which hemorrhage

entirely ceased upon applying, on a swab, through a speculum, the liquor ferri subsulphatis. In a few hours hemorrhage returned, but was stopped as before. The placenta was expelled shortly after, and subsequently the dead child. Dr. Nunn argues strongly in favor of the "new treatment," as he designates it.

In the Obstetrical Society of New York, Dr. J. W. McLane reported a case of placenta previa lateralis, in which delivery was effected without the occurrence of any hemorrhage whatever.

THE PERINEUM.

Much has been written lately of the structure of the perineum, its support during labor, and its immediate repair after laceration. Prof. Thomas, in the new edition of his work on Gynecology, devotes a chapter to a consideration of the perineal body and its great importance in sustaining the contiguous structures, and Dr. Henry J. Garrigues contributes a paper of similar import, on the Obstetric Treatment of the Perineum, to the *Am. Jour. of Obstet.*, for April, 1880. These writers both point out the imperfectness of the descriptions of this part of the body in various works on anatomy. The latter, in particular, seeks to correct many current false impressions. He says: "The fourchette, so generally torn in first labors, is not a fold of mucous membrane as usually supposed, but is formed of skin. It is indeed nothing else than the *commissura posterior*, *i.e.*, the posterior junction of the labia majora; just within is the *fossa navicularis*." The elaborate description of the floor of the pelvis cannot be reproduced here, but it is well worthy of study.

The frequency of rupture of the perineum is variously stated. In a discussion in the Cincinnati Academy of Medicine, Dr. Tait reported 70 ruptures in 142 primiparæ. Other members believed the accident to occur in 90 per cent of cases. On the other hand, it was stated, that in Prof. Braun's division of the Vienna General Hospital, in 1,157 primiparous cases, upture occurred but 68 times. This indicates, possibly, a

smaller tendency to laceration than exists elsewhere; but it certainly indicates the adoption of more effectual measures to preserve from rupture the perineal body. Dr. Tait attributed lacerations mainly to two causes: rapid deliveries and large heads; but Dr. Whittaker asserted that the head rarely caused rupture; the accident resulted during the escape of the shoulders; he had even seen it caused by the hips. Other speakers corroborated, in part, this view, but held that lacerations were often begun by the head and increased by the shoulders.

I think too little importance is attached to the possibility of laceration of the mucous surface of the perineal body, its integumentary surface remaining intact. I have known and *felt* this to occur repeatedly. The tearing will be readily felt by the hand resting on the perineum. I have known quite extensive laceration of the vaginal surface, with little or no external appearance of injury. In one instance the extensions of the nymphæ around the clitoris were torn away, producing great suffering.

With regard to methods for preventing laceration, many are mentioned. They may be thus summarized:

(1.) Prevent the rapid descent of the head by pressure upon it, by avoiding the use of ergot, by placing the patient on the left side, by dissuading the patient from making voluntary effort.

(2.) Relax the vulva and perineum by administering chloroform, by anointing liberally with belladonna, by performing *episiotomy*, by drawing forward, with the hand, the perineum and anus, or the perineum alone, by hooking the fingers in the anus (Goodell's plan), by hooking the fingers in the posterior commissure and drawing it backward toward the coccyx with every pain, until the head rests on the perineum.

Dr. Burk, of Rotunda Hospital, urges the latter plan as accomplishing gradually what otherwise is left for the head often to do rapidly. Dr. Reamy, in the discussion above alluded to, considers, and I think quite properly, that too much discredit is cast upon the forceps in this connection.

With the injudicious and hasty, it is true, the danger of laceration is increased, but in the forceps we have a means of regulating and controlling the advance of the head such as no other methods will afford. By the deliberate and cautious use of the forceps, laceration, otherwise inevitable, may even be prevented. So important is the integrity of the perineum considered, that most writers urge an ocular examination of the parts in all cases immediately after delivery. A strong objection to such a rule, is the repugnance of both physician and patient to its adoption, but it is not only sanctioned but urged by the leading gynecologists of the country. Opinion is almost uniform too, in favor of the immediate operation for repair of the perineum, even in cases of moderate laceration.

POST-PARTUM AND SECONDARY HEMORRHAGE.

Attention has already been called in another part of this paper to the use of hot water uterine injections in post-partum hemorrhage. The treatment continues to be extensively advocated. Dr. Lombe Atthill (*Dublin Jour. Med. Science*), states that it is the routine practice in the Dublin Lying-in Hospital. He gives the following as the result of his experience:

(1.) "In case of sudden and violent hemorrhage in a strong and plethoric woman, it is better to use cold.

(2.) "When, from the prolonged or injudicious use of cold, the patient is found shivering and depressed, the beneficial effect of injecting hot water is rapid and remarkable.

(3.) "In nervous, depressed and anemic women, hot water may at once be injected, without previously using cold.

(4.) "In cases of abortion, where from uterine inertia the ovum, although separated from the uterine wall, is wholly or in part retained, the injection of hot water is generally followed by most satisfactory results.

(5.) "Where the injection of perchloride of iron is considered necessary, previous injection of warm water clears the uterus of clots, etc., permitting the fluid to come directly in

contact with the bleeding surface and lessening the chance of septic absorption."

The injection of tincture of iodine into the uterus has also strong advocates, one writer considering it the most reliable of all measures. He says (*Med. Record*):

(1.) "Iodine controls the hemorrhage, not by coagulating the blood within the uterus, but by exciting the uterus to contract. The blood is expelled in a liquid form, and hence, instead of having the uterus filled with a mass of hard, sticky clots, ready to undergo decomposition, the uterus is empty and disinfected.

(2.) "Tincture of iodine has never, so far as I can learn, caused any bad result, even when injected into the uterus in full strength.

(3.) "The iodine treatment never fails to control the hemorrhage."

The editor of *Medical Press and Circular* urges the extensive trial of ipecac. in nauseating doses, as advised by Dr. J. H. Carriger, of Tennessee (*N. Y. Med. Jour.*). The remedy is not only anti-hemorrhagic, but is oxytocic, relaxing and dilating the os, increasing uterine contractions and expulsive pains, and safely and speedily terminating labor.

Dr. I. E. Taylor read a paper at the Academy of Medicine (*N. Y. Med. Jour.*), on "Flagellation, or spanking of the child's back previous to its entire delivery as a means of preventing uterine hemorrhage; and flagellation of the abdomen of the woman after delivery of the placenta as a substitute for the introduction of the hand into the cavity of the uterus." The title of the paper explains the method advocated by Dr. Taylor. The hips and legs of the child are left within the vagina for twenty minute or more, while the back is being flagellated. The method serves to stimulate uterine contraction.

Dr. Hanks (*New York Obstetrical Society*), mentioned a case of secondary hemorrhage after sixteen days, with death of the patient. Dr. Barker thought the result attributable to malarial poisoning, but Dr. Lusk suggested the retention of a supplemental lobe of the placenta as a probable cause.

It is surprising that so little seems to be known or written of the alum plug in uterine hemorrhages. It appears to me to have advantages over all other methods. In emergencies it is more readily obtainable than hot water or tincture of iodine with the proper syringes to inject; and its use is entirely free from the dangers that attend intra-uterine injections. A piece of alum the size of a hen's egg, smoothed of its sharp edges, and thrust into the cavity of the uterus, stops hemorrhage, causes contraction of the uterus, and prevents septic absorption. Its mechanical presence and the irritating character of its solution, cause the uterus to contract; this contraction, together with the astringent properties of the alum, stop hemorrhage immediately; the changes which the blood and discharges undergo through the action upon them of the dissolving alum, absolutely prevent putrefaction; and the action of this same alum solution upon any lacerated surfaces, prevents absorption. I have never seen other than the most satisfactory results from this treatment, and feel perfectly safe with any uterine hemorrhage, if supplied with an alum plug.

PUERPERAL CONVULSIONS.

Several cases in which pilocarpin, by mouth and hypodermically, was used in eclampsia, are reported with varying results. Langer asserts that it excites uterine contractions and renders them more powerful, and in two or three cases, as many physicians report a similar result; but Kroner used (*Am. Jour. Obstet.*) injections of pilocarpin in four cases without any appreciable effect upon the uterus, although the toxic effect of the drug was marked.

The weight of opinion seems to favor chloral in large doses by the rectum. Guyot (France), reports remarkable success, thirteen of fourteen cases being saved. He injected into the rectum from one to four drachms in twenty-four hours. Dr. Goodell believes it the best single remedy. He directs a drachm by rectum, or twenty grains by mouth, repeated as often as may be necessary, and asserts that he has never lost a case. Other writers are equally laudatory of

chloral, while none discard chloroform. With regard to the induction of premature labor in eclampsia, there seems to be a growing sentiment in its favor, and successful cases are recorded.

Blood-letting is apparently growing in favor again. Many writers advocate it, or at least speak of it as a too much neglected remedy. Dr. C. C. P. Clark (*Am. Jour. Obstet.*) is a strong advocate for the use of morphia in heroic doses. He argues that a woman who bears her pregnancy lightly never has convulsions, hence a prophylaxis consists in removing all irritating conditions. In eclampsia the nervous system is peculiarly tolerant of opiates. Ordinary doses are useless. Inject at once into the arm *a grain and a half of morphia;* should the paroxysm return any time after two hours, repeat the dose. If in labor, repeat the dose in eight hours any way. He says: "This quantity may look large, but I am perfectly confident, after having tried it many times, that it is absolutely safe. I am almost prepared to swear that twice the quantity, not repeated, would do no harm to a patient in a strongly eclamptic condition."

PUERPERAL FEVER.

Dr. G. de Gorrequer Griffith (*Obstetrical Journal and Braithwaite*) seeks to demonstrate the identity of the poison in scarlatina, puerperal fever, typhoid fever, diphtheria, erysipelas, etc. He quotes Churchill and others in support of this view, and presents many clinical facts favoring this theory. That the various febrile disorders of the puerperal period frequently arise from the introduction of poison from without (hetero-infection), as well as from the absorption of putrefying materials within the parturient tract (auto-infection), is no longer susceptible of doubt. Clinical facts, pointing to the interconvertibility of puerperal fever and erysipelas, are now so numerous as to amount to a demonstration, while the possibility of the poison of scarlatina, diphtheria, typhoid fever, and the decomposing cadaver, generating puerperal disease, is becoming more certain daily. A type case of sep-

tic poisoning, illustrating the value of treatment, is mentioned by Dr. Matthews Duncan (*Lancet*). "A woman on the eleventh day after confinement was pale, sick, frequently vomiting, troubled with diarrhœa, the uterus tender, breath sweet, respiration hurried, 44; pulse, 146; temperature, 104.2°; copious flow of stinking lochia. A piece of placenta was removed from the vagina. The hand was inserted into the soft and flabby uterus and placental masses and shreds removed, and the uterus injected with carbolic acid solution (1 to 30). Ergot was given, and the injection repeated every four hours. The next day the pulse was 100, respiration 36, temperature 101.4°, and convalescence progressed steadily, when before, death seemed imminent." In considering the treatment of puerperal fever, Dr. Duncan evidently differs from Playfair and his school, who hold that all the puerperal febrile conditions are of septic origin. He says: "The separate consideration of simple inflammatory fever, and of sapremia is demanded by their utterly different pathology, and by their distinct indications of treatment. For the inflammatory fever we have some modification of the venerable established antiphlogistic method. For the sapremia we have the arrestment of the putrid poisoning. For the septicemia and pyemia, we have no treatment in any sense antidotal or curative in the humblest meaning of that word." Cases of septicemia and pyremia are to be managed rather than treated. Good nursing, careful feeding, prudent stimulation—these are the great points. Iron, quinine and opium comprise the drugs advised, and these, together with vaginal and intra-uterine injections, complete the treatment.

In a visitation of "puerperal septicemia" at the Philadelphia Hospital (*Med. Times*), Dr. W. H. Parrish obtained the best results from the local abstraction of blood by leeches (16 to 20 ounces), warm poultices to the abdomen, warm disinfecting injections into the vagina or into the uterus, quinine in anti-pyretic doses during high temperature, morphia in sedative doses; liq. ammon. acet., as a diuretic, and stimulants when depression appeared. Prior to the adoption of this treatment,

there had been 14 cases and 9 deaths; after, there were 28 cases and 3 deaths. Drs. Woodworth and Davy (*Obstetric Gazette*), urge the value of quinia in large doses—ten grains every two hours—until its anti-pyretic effect is manifest; and Dr. Whittaker (*Obstet. Gazette*), presents the claims of alcoholic preparations in large amounts for a like effect. Boracic acid is advised by another writer. I think I have seen good results from thirty grain doses every two hours of benzoate of soda.

As an evidence of the tolerance of opium in the peritoneal form may be mentioned the case of Dr. Wells (*Amer. Jour. Obstet.*), in which the equivalent of 1,703 grains of opium were given in eight days; and another, in which Dr. Jacobi gave 1,500 grains of *morphia* in twenty-five days, injecting 90 grains hypodermically in one day. Dr. E. P. Bernardy (*Am. Jour. Obstet.*), thinks that too little attention is paid to the liability of puerperal fever to recur. He gives the histories of six women, aggregating twenty-three confinements, and fifteen attacks of fever; and although he speculates on the cause of recurrence, offers no positive evidence.

As to the efficacy of antiseptics, and the duty of the physician who meets with scarlatina, erysipelas and puerperal fever in his practice, opinions differ. One writer goes so far as to advise the giving up of obstetric engagements under such circumstances. It is probable that if thorough attention to cleanliness be observed, and antiseptics be liberally employed, little danger need be apprehended of conveying a poison from patient to patient. I have laterly observed the precaution to wash the hands in carbolic acid lotion prior to making any examination in an obstetric case, and am satisfied that my cases have progressed more favorably in consequence.

Dr. Thos. Lothrop (*Buffalo Med. and Surg. Jour.*) sums up the conclusions of a paper on the antiseptic plan in midwifery, as follows:

(1.) "The puerperal state, prior as well as subsequent to parturition, calls for the rigid application of prophylactic principles and measures.

(2.) "The success of Lister's methods of antisepsis in surgery, calls for the employment of measures founded on the same principles in midwifery, especially in view of the additional factor (septic infection) encountered in the puerperal state.

(3.) "The average mortality—one death in every hundred—demands the serious consideration of the medical profession, and calls for earnest efforts to secure better results.

(4.) "Antisepsis in the Maternity Hospital of Copenhagen, affords a practical demonstration of the utility of such measures in obstetric practice.

(5.) "Puerperal fever can be limited by the free use of antiseptics.

(6.) "Septic infection, in many cases, may be controlled by the application of antiseptics to the intra-uterine mucous membrane.

(7.) "Milk fever, being essentially a wound fever, due to septic infection through injury done to the vaginal and uterine surfaces during parturition, is prevented by antisepsis."

Dr. Fordyce Barker (*Am. Jour. Obstet.*), gives the name "puerperal malarial fever," to a condition coming on after childbirth, and characterized by chills, high temperature, frequent pulse, depression, and remission on the following day. In many instances it is difficult to differentiate between it and phlebitis, the remissions not being well marked. He has found Warburg's tincture, in half ounce doses, every four hours until the fever abates, the most available remedy.

DANGER OF VAGINAL AND INTRA-UTERINE INJECTIONS.

Although Prof. Stadfeldt, of Copenhagen, has employed methodical washing-out of uterus and vagina, in the University lying-in institution; has used in all cases carbolic vaginal injections *before* delivery, carbolic spray *during* delivery, and intra-uterine carbolic injections *after* delivery; has reduced the mortality from 1 in 37 and 1 in 14, to 1 in 87, and has in hundreds of cases never seen any evil result, the operation is

by no means devoid of danger, as an occasionally reported death attests. No one else appears to advocate such universal resort to injections as Prof. Stadfeldt. Profs. Playfair, Barnes, Gruenwaldt and others, strongly advise their use, it is true, but mainly after tedious delivery, or where operative measures have been resorted to, or when portions of placenta, membranes or putrefying clots are retained, or in cases of hemorrhage. Hofmeir especially enjoins that they should not be employed needlessly, as they are dangerous. The chief dangers appear to be from the entrance of air into the veins, the passage of fluid through the Fallopian tube, or the formation and detachment of thrombi in the veins. Several writers point out the imperfection of syringes, which admit air at their joints or valves, and advise the substitution of irrigating apparatus.

A case of sudden death in a negro woman, from the injection of warm water in the uterus to induce abortion, is reported in the Boston *Medical and Surgical Journal.* It was supposed that air entered the sinuses. Another death from the injection of a perchloride of iron solution (1 to 6), for post-partum hemorrhage, is reported in the *Obstetrical Journal.* After a few syringefuls the patient uttered a faint cry, threw up her arms, turned pale, gasped, gave a few sighing inspirations and was dead.

Such an occurrence in the practice of any man is simply terrible. I, myself, have experienced it. A primipara, after tedious second stage, was delivered easily with forceps. Some prolapsed hemorrhoids subsequently gave considerable pain, but would not remain replaced. A moderate cellulitis supervened, with slight elevation of temperature. These unfavorable symptoms soon receded under treatment, and by the tenth day the patient was so far recovered as to consider the propriety of getting up. All pain had receded, involution had progressed normally, the functions were properly performed, etc. *Vaginal* carbolic lotions had been administered twice a day by the nurse. An urgent summons brought me to the bedside of my patient, to find her dead. The nurse was giv-

ing an injection—had injected a few bulbfuls—when the patient, without a struggle, suddenly expired. A colleague has related to me a similar case, occurring under his own hands.

REST AFTER DELIVERY.

Some years ago Dr. Goodell, of Philadelphia, recommended early getting up after delivery. At the Preston Retreat, patients arose the day after delivery and sat in a chair while the bed was being made, and in four or five days were allowed to get up and dress. Of 756 patients so treated only six died. In a paper in the *American Journal of Obstetrics* (Oct., 1880), Dr. Garrigues expresses strong opposition to this plan, and corroborates his opinion by that of a large number of obstetricians, who advocate the retention of the patient in bed for from a week to ten days. Dr. Garrigues, indeed, goes further than this, and says: "*The upright and sitting postures ought to be carefully avoided until involution has proceeded so far that the uterus has receded from the anterior wall of the abdomen and returned to the pelvic cavity*," which in most cases takes two weeks. Prof. J. H. Etheridge (*Chicago Med. Jour. and Exam.*, *Aug.*, 1880), still further protracts the time of getting up, and says he has "reached the solemn conviction that every woman, after delivery, should be made a physician's care for at least two months, or until the uterus has reached its normal size." He bases this opinion upon the facts adduced upon investigation of one hundred consecutive gynecological cases, as follows:

CAUSES.		DIAGNOSIS.	
Confinements	50	Hypertrophy	34
Miscarriages	28	Uterine Catarrh	53
Hard work	5	Lacerated Cervix	9
Unknown	17	Prolapsus	2
		Metrorrhagia	1
	100	Retroflexion	1
			100

In other words, seventy-eight per cent. of all gynecological cases, exclusive of virgins and those suffering from malignant or syphilitic disease, are attributable to gestation, partial or complete.

MAMMARY ABSCESS.

Dr. Hiram Corson (*Am. Jour. Obstet.*), speaks in high praise of applications of ice in bladders to inflamed mammæ to prevent abscess, or even if abscesses have formed, to limit the destructive processes. He has followed this practice for twenty-seven years, and in no instance, if suppuration had not already taken place, has he failed to disperse the inflammation at the same time that he brought comfort to the patient.

TYING THE CORD.

The conclusions of a paper by Dr. W. T. Lusk, on the second stage of labor (*Am. Jour. Obstet.*), are:

(1.) "The cord should not be tied until the child has breathed vigorously a few times. When there is no occasion for haste, growing out of the condition of the mother, it is safer to wait until the pulsations of the cord have ceased altogether.

(2.) "Late ligation is not dangerous to the child. From the excess of blood contained in the fetal portion of the placenta, the child receives into its system only the amount requisite to supply the needs created by the opening-up of the pulmonary circulation.

(3.) "Until further observations have been made, the practice of employing uterine expression previous to tying the cord, is questionable.

(4.) "In children born pale and anemic, suffering at birth from syncope, late ligation furnishes an invaluable means of restoring the equilibrium of the fetal circulation."

ITEMS.

Dr. J. G. Stokes strongly objects to the infant umbilical bandage, as it is contrary to nature, troublesome, inconvenient

and offensive; interferes with abdominal respiration, and with the circulation of the lower half of the child, and is apt to drag upon the umbilicus, and Dr. W. J. Craigen as strongly urges that the new born child shall be neither washed, dressed, fed nor bandaged. As soon as it is born it is placed on its right side, the cord divided by nicking with dull scissors, and sometimes—not always—tied, the body anointed with lard, the face wiped with a damp towel, a napkin applied to the hips, a loose flannel gown, and next a blanket, thrown around it. In twenty-four or thirty-six hours, it is given its first washing and returned to its flannel dress. On the dropping of the cord, it is given to the nurse to dress as she pleases.

Dr. A. E. Burckhardt has endeavored to ascertain if vaccination of the mother during pregnancy will protect her child from vaccinia, and eventually against variola. The children of six mothers who were vaccinated or revaccinated after the sixth month, with complete or partial success, were vaccinated without effect. The number of experiments was too small to justify a judgment, especially when it is remembered that very young infants often are insusceptible to vaccinia, although they may become so in a few months.

Dr. E. L. Partridge (*American Journal of Obstetrics*), referring to a statement made by the editor of the same journal, that he had met with but two cases of knots in the funis in 2,000 deliveries, says that in a little over 500 deliveries he has met with four cases. In the first, a long cord had two simple knots; the second cord, thirty-three inches long, was knotted once; a figure of eight knot was found in the third cord, also long; and a single knot in the fourth. All the children were alive and vigorous. The author thinks that knots occur oftener than supposed, and are not discovered, as the cord is not genally carefully examined. Spiegelberg estimates that they occur once in every two hundred confinements.

Dr. Volkman reports in *Centralblatt fur Gynakologie*, a case of quintuplets. All the children breathed—the last lived five hours. They were born at about six and a half months. The

first three had one sac and three placentæ joined together. The fourth and fifth had separate chorions and placentæ.

Dr. Wm. Stark reported to the Obstetrical Society, of Cincinnati, the birth of a child weighing 20¼ pounds. It was the mother's fourth labor. The child presented by the breech, and was delivered by the aid of Dr. Mills' breech forceps. It was asphyxiated, but breathed in half an hour. Length, 22½ inches; cervico-bregmatic diameter, 7¼ inches; occipito-mental diameter, 10 inches; circumference of the head, 14½ inches.

. . . . ON MEDICAL TOPOGRAPHY. ENDEMICS. ETC.

. . M CHIPMAN, M. D., CHAIRMAN.

. . . . AND MEMBERS OF THE MEDICAL SOCIETY . . . . CALIFORNIA: I believe in a benificent Author . . . . world, with whom a thousand years are as . . . . as a thousand years; and I believe in a . . . . the nations of the earth, of the past . . . . present generation, and of the generations . . . . be together in common intercourse, ... at which each individual entered in . . . . this earth. And there shall the true character . . . . be known. And he who has spent his time . . . . performance of his duty . . . . the great . . . . of kindness and deeds which inure to the . . . . will be honored and loved of all men: and . . . . and countenance of the Supreme . . . . that he who has idled away his time, or has in . . . . of evil propensities, or by exclusive pursuit of . . . . wrought works which are detrimental, or . . . . women, shall be cast out from association . . . . from the presence of the Perfect One.

. . . . now, within the borders of our great State, ... unequaled climatic conditions, was intended . . . . our common country, and a choice abode . . . . population, vast tracts of barren desert lands, ... since were covered with blooming gardens . . . . fruit orchards, and inhabited by a prosperous . . . . and when I learned that all the mountain

streams of the west slope of our great Sierras had been seized upon, and converted into instruments of destruction, and made the bearers of devastating debris, which is rapidly burying and destroying the great valley which they were intended to fertilize and bless; then came to me the voices of multitudes of hungry men and of starving women and children,.of the future generations; and the Great Common Father bade me: Go, as thou seest this great evil, and raise thy voice against it.

My atttention was first specially directed to the subject of the mining debris deposits, during a trip through the upper Sacramento valley, and a stop over for a few days at the city of Marysville; and I then determined to give it further investigation. Accordingly, I left San Francisco on the 8th of December, and taking with me a horse and buggy to facilitate the getting to all points wherever the investigation might lead, I repaired again to Marysville, and continued in the districts most subject to the deposit, occupying the time, although somewhat hindered and impeded by the unusual inclemency of the season, and the prevalence of flood during the latter part of the period, until the 14th of February, in examining the country, and in acquiring statistics and information in regard to these matters; in doing which I drove about the valley and somewhat into the mountains, as far northward as the location of the Spring Valley Mining Company's mines, at Cherokee Flat, above Oroville; and on my return as far southward as the Consumnes river, some twenty miles below Sacramento.

Hydraulic mining is peculiarly an American invention, and an offspring of the discovery of the California gold mines; and from the most reliable available information, the year 1856 was about the date of its first having become so arranged and systematized as to assume importance as a distinct method of mining. After some advancement had been made in developing this system, the fact that the volume of water could not be increased beyond the ability of a man to sustain and manipulate the terminal end of the hose, in order to change, as required, the direction of the nozzle, seemed to limit

further progress, but in 1870 this obstacle was overcome by the invention of the chief. The chief is a heavy iron pipe or machine, which rests on the ground and receives the terminal end of the pipe, which conveys the descending stream from the reservoir. This machine is made with its nozzle orifice of diminished calibre, and the water being compressed, by the weight of the column, is thus forced through it with great velocity. And it also contains an internal arrangement, by means of which the water is projected from the nozzle in a compact stream; and the nozzle is so adjusted to it with joints that the direction of the stream can be changed by the operator with but little effort. Since this successful invention, the system has by degrees been improved, enlarged and extended, until hydraulic mining has assumed immense proportions. Water is carried long distances, at an outlay of large sums of money in the construction of ditches, and numerous engineering difficulties have been overcome, in tunneling through mountain spurs, and in crossing ravines and canals by means of lumber flumes; and where the depression is too great for a flume to be supported with timbers, an iron pipe is laid, which conducts the water down to the bottom, whence the pressure of the inflowing column forces it up the pipe to an equal elevation on the opposite side of the canyon, where it resumes its course onward toward its destination. Some of these ditches are over fifty miles in length, and there are lumber flumes in use of a mile in length. The Cherokee ditch is taken across the west branch of Feather river, where the depression is such that the pressure sustained by the pipe is equal to a perpendicular column of 887 feet, 12,000 feet of thirty-inch iron pipe being used for the purpose. The Miocene Company, of Butte County, has a ditch of the capacity of 3,000 inches of water, which has a flume suspended against a perpendicular cliff, by iron brackets, at a distance of two hundred feet from the ground beneath it. There are iron pipes in use, in connection with some of these ditches, of four feet in diameter. A ditch terminates in a reservoir, which is located on ground sufficiently elevated to usually give a fall of from two to three

hundred feet to where the water is applied in the mine, and sometimes a greater head is obtained. The Spring Valley, the Miocene, and the Excelsior companies, have about 300 feet each.

But the enterprising miner is not satisfied with the use of water-power alone, but also adapts to his purpose the force of the most powerful explosives.

Running drifts, side drifts, and counter drifts, into a bank at distances of from fifty to four or five hundred feet below the natural surface, there is then placed within these narrow chambers whatever amount of blasting powder the conditions indicate can be used to the best advantage, perhaps ten tons, perhaps twenty tons, and even as much as 3,100 kegs, or thirty-eight tons and seven hundred and fifty pounds, have been used by the Excelsior Company at a single blast. And when the earthquake explosion has shaken up and loosened thousands of tons of earth, above and around it, then the mountain river which is reservoired in the artificial lake on the summit, is turned in perpendicular stream upon the half disintegrated bank. A thousand inches of water, with three hundred feet pressure, projected through an eight-inch nozzle, strikes with the force of a cannon ball, it burrows into the wall of earth, it recoils and runs off with rapid current, bearing its spoil of earth and pebbles on its way to the valley.

This is briefly the gigantic process by which the superincumbent earth is washed from the gold-bearing gravel deposits, and from thence is carried on down to devastate and ruin the country below.

In the early settlement of Yuba county, the Yuba river was a stream of pure, clear water, running between banks of from eighteen to twenty-five feet in perpendicular height, with deep pools in its channel which were the abodes of food fishes, and the bottom lands on both banks were of unsurpassed fertility, and adaptability to gardening and fruit raising.

In 1851, G. G. Briggs brought from the State of New York four hundred fruit trees and set them out on his ranch, situated three miles above Marysville, which was the first step

toward fruit raising in Northern California. Subsequently setting out additional trees from year to year, Mr. Briggs had raised and brought into bearing an extensive and very profitable orchard. Other settlers followed Mr. Briggs' example, and a considerable acreage was being cultivated in fruit. In 1858, Mr. Briggs first observed the deposit of debris in the river channel and on its banks, in quantities to create apprehension in regard to its future effects upon the farming lands of the valley.

The winter of 1861 and '62 was a season of unusually heavy rainfall, and the inundation which resulted left a thick coating of debris in the Briggs' orchard, and in other parts of the valley. Thereafter, each overflow added to the deposit, increasing the destruction of the orcharding and the injury to the ranches. But it was in the river channel that the work of destruction advanced steadily and unceasingly. First, the deep holes were invaded and filled up, then the whole river bed became gradually raised, until the channel was completely filled up and obliterated, and the water ran forth over the bottom lands, bearing its burden of debris, and depositing it everywhere in its course, to complete the final overthrow. Thus was destroyed one of the finest valleys in the State of California, and its inhabitants reduced to poverty, from comfort and affluence, were driven forth from their chosen homes, to seek a living wherever their ill starred fortunes might direct; and 15,200 acres of choice lands, covered with valuable improvements, was converted into a plain of desolation.

The city of Marysville is situated on the north bank of the Yuba river, at its confluence with the Feather. Originally the more elevated portions of the town site were above the reach of overflow, and as the lower part has been filled in and raised to the higher level, if the river channel had remained in its natural condition, the place would never have suffered from being flooded; but as the river bed became raised and the channel of Feather river obstructed, the town became subject to inundation, which has caused much damage, besides

being a source of heavy expense in building and keeping up levees for protection.

In the early settlement, the bank of the Yuba was cut down and graded at a point within about a mile of its mouth, to accommodate the steamboat business, and that continued to be the regular landing until the channel became obstructed with debris; since which time, the filling of the channel and the covering and filling up of the bottom land to the depth of from eight to fifteen feet, has raised the bed of the river twenty-eight feet, and to the level of the streets at the old landing, and higher at all points above. Formerly there was a sharp rise, or low bluff, of from six to ten feet, separating the bottom from the adjacent upland, and as the river bed became raised, levees were constructed nearly on the line dividing the lowland from the upland, to confine the river within the area, which had already been destroyed. Since which, the process of deposit and elevation has continued, the height of the levees being increased as required, until the debris plain has become higher than the former high land on either side of it. During the low stage, the water covers only a narrow strip, but as high water approaches, it spreads out and occupies all of the broad space between its artificial banks, and in case a levee breaks, with the increased head acquired at flood time, the water is precipitated from its elevated plain upon the country below, with fearful and destructive force. These untoward circumstances, together with the exodus from the devastated lands, have occasioned a loss of population to the city, and a heavy depreciation in the value of real estate.

Bear river, another tributary of Feather river, with which it unites at about twelve miles below the mouth of the Yuba, is a somewhat smaller stream, but originally possessed the same characteristics as the last named, and in its course from the foothills passes through a body of land of like quality; and the history of this valley since the advent of debris would be but a repetition of the scenes of the other valley: the same invasion and devastation, followed by complete destruction, and the exodus of the population. Old settlers of the

neighborhood of the destroyed lands furnish from memory a list of forty-two families who thus became victims, in the loss of their homes and property.

The valleys described were among the first invaded by the downflow of debris, but their destruction is but a small part of the damage which has been caused by it, and their area constitutes but a small proportion of the territory affected, which embraces all the principal tributaries of the Sacramento, including the tributaries of Feather river, which flow into those streams from the Sierra Nevada, within the Sacramento valley, and the bottom lands located on all of those tributaries, and to a great extent includes the channel and the bottom lands on both banks of the main river.

Evidence of damage is found as far north as Butte creek, in the southwest part of Butte county, in the filling in of its channel and by deposits on its adjacent bottom lands; and at Oroville, which is located on Feather river, at its entrance into the valley, and about seventy-five miles northward of Sacramento city.

Originally Feather river was a stream of clear water, with high banks, and holes, or pools, in the neighborhood of Oroville, of thirty and forty feet in depth; and further down the low water occupation of the channel consisted of deep pools, or reaches, of several miles in length, alternating with short, shallow rapids. But these holes and reaches have become filled up with debris, and the bottom of the river raised to very nearly a common, even grade, on a plane higher than the former rapids, from Oroville to the mouth of the Yuba, a distance of thirty-seven miles by the river. The deposits above the last named point are mostly tailings of the mines in the neighborhood of Oroville, at the mouth of Yuba river.

State Engineer Hall, in his report to the Legislature at the session of 1880, states that the channel of Feather river had become filled in from bank to bank, at an average depth of eighteen feet, by the deposit from the Yuba. And from there the channel is filled nearly, and in places quite full, on down to its mouth, a distance of thirty miles; the low water plane

of the river having been raised at the time of Mr. Hall's examination, at Oroville, from five to six feet; at the mouth of the Yuba river, from thirteen to fifteen feet; and at Nicolaus, from three to four feet. Before the filling in of the channel, the bottom lands of Feather river, except on the east side below the mouth of the Yuba, were above the high water mark of ordinary seasons, and therefore subject to overflow only during the seasons of extraordinary flooding, but since the filling in these lands rarely escape being flooded once or twice every year; and the obstruction to drainage and the natural outflow of the water, so prolongs the period of inundation, and keeps the land soaked and overmoist for such a length of time as to have destroyed the greater part of the orcharding, and renders all the bottom lands of this river, from twelve miles below Oroville to its mouth, either entirely unproductive and valueless, or much damaged thereby—besides much damage has been done above the mouth of the Yuba, and thousands of acres permanently ruined below that point by the deposit of debris.

The channel of the Sacramento river has been filled in from the mouth of Feather river, to some distance below Sacramento city, to a great extent. The deep holes, or reaches of deep water, have been filled up, and the shoal places made more shallow, and a general raising of the river bed, and elevation of the low water plane has taken place. At and just below the mouth of the American river, Mr. Hall ascertained by comparison with a survey made by the direction of the Sacramento City Council, in 1854, that the maximum filling was thirty feet, and that the average fill across the channel was fifteen feet and two inches. From Freeport, twelve miles below Sacramento, to the head of Grand Island, the filling in had been less, yet enough to noticeably raise the river bed and the plane of low water. Mr. Hall estimated the elevation of the low water plane above the original level, to be at the head of Grand Island, from one and a half to two and a half feet; at Sacramento, from five to five and a half feet; at the mouth of Feather river, from three to four feet; and at Knights'

Landing, in consequence of the backing up of the water from the filling at the mouth of Feather river, from one to one and a half feet. Sloughs of the river, or subsidiary channels, which formerly received its surplus as the water approached the higher stage, and thereby greatly added to its carrying capacity, have also been very much filled in, and Steamboat Slough, the channel on the north side of Grand Island, and which was formerly navigable for large steamboats at all seasons, has become nearly obliterated.

The bottom lands of the Sacramento have, in some localities, received permanent damage by the deposit of debris; but the process which has ruined its tributaries and their adjacent bottom lands, has not yet advanced to the same stage in the main river, and the injury at present proceeds more from the increased, more frequent, and prolonged flooding, caused by the unfavorable changes in the river channel.

In Placer county, along Coon creek and Auburn ravine, considerable tracts of fertile lands have been devastated. In Sacramento county, the former very productive valley of the American river has been nearly destroyed; and the fertile bottom lands of the Cosumnes have been in part destroyed, and the balance much damaged. The lands of Mokelumne river have sustained damage, but to a less extent.

I have collected statistics of area, and estimates of the losses of the greater portion of the destroyed and injured lands in that part of the Sacramento valley lying east of the Sacramento river, and north of Sacramento city, including the American valley, and also of the Cosumnes bottom lands, and of the destruction of real estate improvements, so far as I was able to obtain authentic account, and of personal property to a limited extent; getting my data and estimates in part from Mr. Hall's report and from county records, and in part from the statements of intelligent and reliable resident citizens who have an intimate knowledge of the facts and circumstances.

On the Yuba river 14,100 acres of bottom lands have been covered with debris from eight to fifteen feet in depth, the

estimated loss being $1,906,200. And outside of the levee and east of Marysville 1,120 acres of the higher land have been so covered with debris, in consequence of the breaking of the levee, as to cause damage and depreciation in value amounting to $61,600.

George Ohleyer, Esq., who was intimately acquainted with the condition and improvements in Yuba valley, testified before the Legislative Committee on Mining Debris, of the session of 1877–78, that the losses sustained by the settlers upon these tracts of land, in the destruction of buildings, fences, orcharding and other property, would amount in the aggregate to from $1,500,000 to $2,000,000. Not wishing to exceed the most conservative estimate, I have adopted the lowest figure.

In 1875 the Yuba river broke its levee and inundated Marysville so suddenly that the surprised inhabitants had barely time to escape with their lives, leaving their effects to be destroyed. The loss, at that time, in household furniture, implements, merchandise of various kinds, hay, grain, fuel, etc., as then estimated by C. E. Sexa, Esq., amounted to $600,000. From 1860 to 1880, the city records show a depreciation in the valuation of lands, within the city, and of real estate improvements, of $918,464. This is much less than the actual damage and depreciation which the real estate of this city has sustained on account of the debris encroachment upon itself directly, and from the enforced depopulation of the neighboring country, but having no means of arriving at a full estimate, I shall adopt these figures.

On Bear river 8,800 acres of bottom lands have been destroyed, the loss being $875,600, and by a carefully prepared estimate of Messrs. J. M. C. Jasper and Charles Justis, real estate improvements of the value of $96,400 were destroyed with the land. Along Feather river, from Marysville to Shanghai Bend, a distance of two and one-fourth miles, 1,470 acres of land have been covered with debris, to such a depth as to destroy it, the loss being $146,265. In Yuba county, on Feather river, below Shanghai Bend, 5,476

acres of land have been damaged and depreciated in value in the aggregate of $125,820. Above Marysville, along Feather river, extending to the Butte county line, 4,000 acres of bottom lands have been nearly ruined, and have sustained damage and depreciation in value, as per estimate of Messrs. James Strain and J. J. Shandon, to the amount of $260,000, and on this last tract, orcharding of the value of $200,000 has been destroyed.

The total amount of destruction and damage to property in Yuba county, of which I was able to obtain authentic account, amounts to $6,547,849.

T. B. Hutchins states, that on Honcut creek, in Butte county, 1,500 acres of land have sustained damage to the amount of $37,500; and that along the east bank of Feather river, above Honcut creek, 3,750 acres of land has sustained damage to the amount of $112,500.

From statements of Messrs. Robert Turner and A. W. Campbell, I learned that on the west bank of Feather river, in Butte county, 685 acres of bottom lands have been much injured and depreciated in value, to the amount of $20,550.

The total damage by debris, and from its effects, in Butte county, of which I was able to obtain definite estimates, amounts to $170,550.

Sutter county, which originally contained more fine agricultural land in proportion to its total area than any other county in the State, from its exposed situation, and particularly on account of the filling in of the channel of Feather river, has been a great sufferer, having sustained damage and depreciation to the extent that the total valuation of real estate in the county, at the present time, is not one half what it would have been without this invasion of the offal of the hydraulic mines.

B. F. Walton, Esq., with the assistance of other responsible gentlemen of that county, has made the following estimates: Along the west bank of Feather river, in Sutter county, 11,520 acres of rich bottom land has been covered with debris, and rendered valueless, the loss of which amounts to $1,152,-

000; and on this tract, orcharding which belonged to the estate of the late J. G. Briggs, of the value of $50,000, has been destroyed. And on account of the exposure to the overflow of Feather river, and the heavy rates of taxation incurred in efforts for protection by levying, and the general apprehension that the bed of the river will soon become raised so high that the water will altogether leave its channel and spread out over these lands, with its debris, to complete their destruction, all the higher or second bottom lands, situated between the bottom lands of Feather river and the bottom lands of the Sacramento, in Sutter county, and which under ordinary circumstances would be well worth $60 per acre, will hardly sell at present for from $15 to $30 per acre. The area of land thus situated embraces 138,880 acres, and at $30 per acre the depreciation of this tract amounts to $4,166,400. This last tract, unlike the bottom lands, has not yet received much permanent injury, and could the downfall of debris be stopped, so that the river bed would not be raised still higher, this land could be protected and would appreciate in value again, but the apprehension is that relief will come too late and that the whole tract will be permanently destroyed.

Along the east bank of the Sacramento, in Sutter county, is a large tract of formerly very productive alluvial land, but now rendered almost worthless on account of the partial damming of the river by the deposit at the mouth of Feather river. Col. Wm. Rackaby estimates the area of this tract at 15,360 acres, and the aggregate depreciation in value at $691,200.

Phillip E. Drescher, Esq., of Nicolaus, makes the following statement in regard to the destruction of and damage to lands on the east side of Feather river, in Sutter county: One tract of 500 acres has become buried up in debris and completely destroyed, the loss being $15,000; and 51,840 acres have sustained damage, causing an aggregate depreciation in value of $724,800.

The total loss, damage and depreciation in values, in Sutter county, so far as I was able to obtain account and reliable estimate of, amounts to $6,799,400.

Along Auburn ravine and Roseville creek, situated in Placer and in Sacramento counties, Mr. Hall, in his report, states that 2,480 acres of land have sustained damage and depreciation in value, amounting to $86,800.

Hugh M. Larue, Esq., made the following statement of damage to lands and destruction of property in Sacramento county. On the east bank of Sacramento river, from the mouth of American river to the Sutter county line, 3,840 acres of formerly excellent garden and fruit land has been rendered nearly valueless; the damage and deprecation amounting to $537,600. That lying immediately back of the above mentioned strip is a belt of 23,040 acres of formerly excellent pasture land, which has been damaged to the amount of $138,240.

Mr. Larue also states, that along the north bank of the American river, 3,000 acres of very rich alluvial land has been nearly destroyed by deposits of debris, the damage and depreciation in value of which he estimates at $280,000, and that orchards, vineyards and buildings, have been destroyed on the last named tract, of the value of $41,000.

At the mouth of American river, on the south side, between the city levee and the river, was formerly a tract of 900 acres, which was very productive in fruits and garden stuff, and which was divided into eighteen holdings, and had located upon it sixteen resident families, each of which received a considerable income from this landed property. But A. S. Greenlaw, Esq., one of the four proprietors who still are striving to retain their residences there, states that 200 acres have been destroyed, entailing a loss of $60,000; and the other 700 acres have become nearly valueless; the estimated damage and depreciation being $189,000. On this tract, orchards and buildings have been destroyed of the value of $95,000.

On the south bank of the American, above Sacramento city, Dr. W. S. Manlove states, that 900 acres of alluvial land has been destroyed, of the value of $135,000, and 3,580 acres have sustained damage and depreciation to the amount of $268,500. And on these tracts, orchards, vineyards and

buildings, including Smith's orchard, which was one of the most valuable in the State, have been destroyed, to the amount of $135,000.

From the statements of Messrs. Charles Pierce and D. H. Cameron, I have compiled the following estimate of loss and damage to lands along the Consumnes river: There are the equivalent of twenty sections or 12,800 acres, which have have been subject to the debris deposit; of which 2,560 acres been completely destroyed, and the balance, 10,240 acres, have been badly damaged. The loss of the destroyed lands is estimated at $153,600, and the depreciation in value of the damaged lands amounts to $307,200.

The total amount of destruction and damage, which I was able to obtain account of, in Sacramento county, caused by debris deposits, not including the damage to lands on Roseville creek, aggregates $2,340,140.

The total destruction of lands and property, and damage to lands, in that part of the Sacramento valley of which I made examination, so far as I was able to obtain account and arrive at estimates of, amounts to $15,944,739; there having been 40,050 acres of the richest and most valuable fruit and garden lands in the State completely destroyed, and 270,991 acres of other valuable lands which have sustained great damage and depreciation in value. In fact, considerable tracts of the lands classed as damaged, are so nearly destroyed as to possess at present only a nominal value.

But the losses and damages, of which I was able to obtain a sufficiently definite account to form equivalent money estimates of, is comparatively a small proportion of the actual damage already caused by this immense outflow of mining debris; and I will now point out, briefly, some of the losses and injuries sustained, of which no account has been taken, and other damages, which are inestimable. Of the extent of the deposits on Butte creek, I was unable to obtain an authentic account, and I was informed of damaging deposits on the Sacramento bottom lands, in Yolo county, and also in Sacramento county below Sacramento city, which I was prevented from examin-

ing, or getting definite account of, because of the prevalence of flood at the time which I had devoted to the purpose.

And there is an area of several thousand acres of land, in the southern part of Butte county, which has sustained damage and depreciation from the same cause which affects the second bottom lands adjoining in Sutter county, but not to an equal degree.

State Engineer Hall, in his report to the Legislature, at the session for 1880, states as follows: "A study of this subject has led me to the conclusion that by the raising of their beds, the Feather and Sacramento rivers below the mouth of the Feather, have been diminished in carrying capacity, on an average, about thirty per cent of their former ability to pass flood waters between their natural banks, and that at points, the capacity has been reduced as much as fifty per cent; so that could these rivers have been brought to one uniform capacity, before the extraordinary filling commenced—that is, could the bars and bad bends have been taken out then, as they could have been at a comparatively small expense by a proper treatment—the whole channel would have been of double the capacity it is to-day, and would have remained at that, or have become still greater if the flow of sand had not come."

Here we have direct evidence, that the statements regarding the flooding of the Sacramento valley for the past twenty years has been constantly increasing, in the several respects of frequency, extent of area, and in the prolonged duration of each overflow, must be correct; and it is not possible but that this increased flooding should produce disastrous effects upon the farming interests involved. Although that part of the valley which I examined, has received the greatest proportionate amount of damage, yet in the greater area which I was unable to visit at this time, there have been thousands of acres of orchards destroyed, and there are extensive tracts of lands, which were formerly cultivated with success and profit, which latterly have been abandoned as farming lands, because of these encroaching changes, of which no estimate has been

made. And the thousands of acres of crops, which in consequence of this thing have been repeatedly destroyed, the immense quantities of fencing which have been displaced and destroyed, the number of buildings which have been wrecked and swept away, the live stock and other property that has been destroyed, of all these great losses there has been no record kept. And although we are unable to ascertain in respect to the damages from flooding, the difference between the immense losses which have actually taken place from time to time, and the amount of damage which might have occurred had the natural channels remained as formerly, yet taking together the evidence of history, the statements of the resident population, and the facts of scientific investigation, there can be no doubt but that by far the greater part of the temporary damage, and all the more permanent, is justly chargeable to the destructive agency of hydraulic mining.

Immense sums have been expended in efforts for protection, by levee building; Sutter county alone having spent over $2,000,000 for that purpose. The first levees were built above the high water level of previous floods, but in a short period thereafter, the dropping debris had raised a platform, and so obstructed the outflow, that the water, rising higher than ever before, overtopped and carried away the levees and flooded the farms to an unprecedented depth.

Again the ranchers tried this same line of defense, building higher, broader and stronger, but this never resting agent of devastation kept on with its filling in and building up, and when the next great flood came, its interposing barriers were more numerous, and its stairway reached higher than before, and the poor farmer saw his hope of protection, on which he had toiled and expended his savings, overcome again, and the murky deluge rush on over his lands, carrying destruction with it, and leaving blighted and devastated fields after it. And this same procedure has been repeated over and over again, until many of the ranchers, having got heavily into debt through their misfortunes, have become discouraged, and now manage to get along with as little expenditure of money

for improvements as possible, indulging a faint hope of a change for the better, but with more apprehension of the final complete destruction of their half ruined ranches. This is the situation, not of the destroyed lands, but of extensive districts which are awaiting the termination of the process, by which, on the streams first invaded, more than 40,000 acres have already been hopelessly buried.

Although the cities of Marysville and Sacramento have met with better success, having, on account of the great amount of property concentrated within comparatively limited area, by means of proportionate outlay in levee building, with a few exceptional instances, been able to protect themselves from overflow, yet this has been accomplished only through great watchfulness, and burdensome expenditures of money. Had there been no mining tailings sent down from the mountains, no leveeing would have been required at Marysville, and only a low and inexpensive levee at Sacramento, and very little leveeing for protection elsewhere in the valley, and therefore nearly all of the great expenditures for those purposes have been caused by the debris invasion.

It is well known that the navigation of the Sacramento, and its tributaries, is not only a convenience and advantage of itself, but that it also serves as a regulator of the rates, so far as it extends, of the railroad companies, and that, too, without trouble or expense to the State—that wherever this natural competition exists the prices of pasenger fares and of freights are materially less than in other parts of the State, and yet the navigable capacity of the main channel has already been so much diminished, that, whereas fifteen years ago, between San Francisco and Sacramento, one thousand ton steamers were suitable for any stage of water, at present vessels of half that capacity meet with more difficulty than did the large class before the filling in had taken place. And there are sloughs of the river, which were formerly made use of for the shipment of farm produce, with great saving of expense to the farmers of adjacent lands, the navigability of which has been destroyed. And Feather river, in its natural condition, could

have been so improved, with but little expense, as to have been a good navigable stream for small steamers during the entire year, as far as Oroville, but that opportunity has been destroyed.

Some years since, by the union of capital and enterprise, several islands of the Sacramento were leveed, and great quantities of produce were being shipped from them to the San Francisco markets. The prospect of profit from these investments was encouraging, reclamation schemes were the order of the day, and plans were being devised for a general system whereby the whole area of our extensive tule lands might be reclaimed. But repeated overtopping of levees and devastation of the lands which had been reclaimed followed, ruining some of the people who had already invested, and discouraging all others; and reclamation became a thing of the past. I am not able to state to what extent reclamation might have proved successful otherwise, yet as the deposits were there to increase the elevation of the waters, and as a dammed stream will always rise above its obstructions, these must have been a factor in the causes which produced the disastrous results. And as the river channels are the only outlets of the tule lands, steps in the direction of drainage appear to be inconsistent while this process of filling in is allowed to continue, and it would now require an immense outlay to remove the obstacles which this deposit has added to the difficulties of accomplishing the reclamation and much desired addition of these fertile lands to the agricultural resources of the State.

The destruction of the tributaries, and the injury to the Sacramento itself, as sources of fish supply, is much to be regretted; and especially in consideration of the recent very useful discoveries in the art of propagation of edible fishes, is a serious loss to the food resources of the State. And the changing the former pure and wholesome character of the waters of all these streams, into their present very muddy and unsightly condition, is a great inconvenience, and more or less a cause of expense to the districts which they should naturally supply, the waters of the tributaries being rendered

entirely unfit for any use, and although the Sacramento water is very turbid and unfit, yet the inhabitants of Sacramento city are obliged to us it, for the reason that all other available sources of water supply are corrupted from this same cause.

The enlarged area of submerged lands, and the obstruction to drainage, greatly tend to increase the extent and frequency of malarial disorders; and physicians of experience in the affected districts, state that the fresh deposit itself contains a principle which engenders disease that partakes of the typhoid character, and is much more difficult to manage, and more liable to a fatal termination than the simple malarious fever which prevailed before the advent of debris. And in the cities of Marysville and Sacramento the water level has been so much raised on the outside of the city levees, as to obstruct the drainage and discharge of sewage during a long period of each year, which adds another serious evil to the many imposed by the debris deposit.

I have now presented a brief outline of the losses and damage to the material interest of the State, by this unexampled condition of things; and the facts given, show that the vast area of country on which the profits of farming have been offset by repeated destruction of crops, or which have been rendered unproductive, of which I have made no estimate, the widespread losses from time to time, of which no account can be obtained, and the inestimable injuries to which I dared not venture the application of figures, amounts to many times more than my calculated estimates; and even to more than all the gold that has ever been taken out by this destructive process of mining.

G. G. Briggs, who has had three fine orchards destroyed in succession, on the Yuba, Feather and Sacramento rivers, and who has had ample opportunity to observe its ruinous progress and study its results, expresses the opinion that the mining debris has damaged the State of California more than $500,000,000; and it is certain that even that large sum would not suffice to compensate for all the property it has destroyed, and gather up the mountains' bulk of incumbering debris from

off our fertile valleys and out of the channels of our once beautiful rivers, and transport it off to where it would be as much out of the way as it was back in its long time resting place; and no power on earth can cancel the impoverishment and privation its victims have endured, the disease and misery it has already inflicted, or restore the desolate homes it has broken up and destroyed.

And now, having considered the damages already sustained, let us examine the results which must follow, provided this process is allowed to continue.

Mr. Hall, in his report, estimates that it will take thirty years to work out the hydraulic mines at the present rate of mining, and G. F. Allardt, C. E., who has made a detailed survey of the main Yuba river, and of its north, south and middle branches, estimates that it will take forty years. Now, when we consider the progress thus far, and that the experience and skill acquired, and the appliances now in use, are such that the rate of mining and displacement of earth is immensely greater at present, and will continue to be in the future, than it has been in the past, we can come to no other conclusion but that total and complete devastation must inevitably follow. Feather river will soon be permanently forced from its channel, and the same will result to the Sacramento at no distant time. The lands lying along the Feather river which have not already been destroyed, and the second bottom lands of Sutter county, will, in a short time, become as valueless as the debris plane of Yuba valley; and long before this lease to ruin shall have expired, and the miners have washed out the last gravel deposit, the main valley will have been converted into alternate tracts of debris desert and sand marsh, and all the most productive portions of the whole valley will have become depopulated. Marysville will become untenable and tenantless, and if Sacramento manages to keep out the flood waters and save its streets and buildings by reason of its greater property interests, it will necessarily go into a decline in sympathy with the surrounding desolation. And as to our commercial metropolis: A hundred thousand acres

of the best land in California have already ceased to furnish tribute to its markets, or to support customers for its merchandise and the products of its manufactories; and the producing capacity of a much larger area has been materially diminished, and the business of the city must sympathize with and will continue to be affected by the prosperity or decadence of its supporting country. And although the slickens which remain in suspension in the Sacramento, and accompanies it into and in part through the bay, has as yet produced no perceptible effect in diminishing the capacity of the harbor, yet the heavier debris is busy in preparing itself a way. As long as there are holes in the river channel the sand will deposit in the holes, but the holes are rapidly filling, and when the grade which has been completed in the Yuba to its mouth, and from thence to the mouth of Feather river, shall have been finished in the Sacramento, and extended on, and Suisun and San Pablo bays have become filled and leveled up, then the current will push the debris on over the smooth surface into San Francisco bay. Could the outflow of debris be arrested at once, no great damage would result to the harbor from what has already found lodgment in the uneven bottom of the river channel; but if allowed to continue, just as certainly as the sands from ten times the distance on the upper Missouri are carried down and obstruct the entrance to the Mississippi, just so surely will the debris of the hydraulic mines fill in San Francisco harbor, and obstruct the entrance at the Golden Gate. And although it might be possible to compel the miners to keep their tailings out of the streams whenever the shoaling of the harbor commences, yet there would then be enough on the way down to cause great and irreparable injury to the shipping interests of the city and State.

THE ONLY REMEDY.

Colonel Mendell, in his testimony before the Legislative Committee of 1877–78, said: "That a man who is not an engineer might understand the subject of mining debris, provided he had been accustomed to deal with it, and an engineer

might not understand it, in case his attention had not been directed to it." In fact, it is a subject to which methematics is not applicable, in all respects, and in which experience and opportunities of observation are worth more in some respects, than engineering science. Captain Eads, who has acquired a great reputation as a successful engineer, failed in his very brief visit to the mining districts to arrive at an understanding of the situation, and suggested a measure which experienced hydraulic miners at once pronounced futile; and some of them predicted before the dams were tested the exact manner of their failure.

After six weeks study of the behavior of the Yuba dam, making frequent visits to it during the rainy season, I am satisfied that no brush dam built on a sand foundation can successfully resist the force of our mountain rivers; and further, that if one could be made to stand, the brush in that situation would become perfectly rotten in three years' time, and lose all power of resistance. And again, if a good solid rock dam should be built by sinking below the deposit for a foundation, at a cost perhaps of $500,000, yet a single dam causes so small a proportion of the solid matter to settle, that there is no perceptible improvement in the appearance of the water from passing over it, and the diminution of the deposit below would hardly be appreciable.

Engineer Allardt, in testifying as an expert in the case of Keyes vs. Hydraulic Mining Companies of Bear river, stated that, in his opinion, to settle and make clear water of that stream while the mines are in operation, would require 100 dams; which dams would fill up in two years time, and others would have to be constructed to perform the duty. Although Mr. Allardt admits that a less number would do, by building higher than those which he then contemplated, yet every one who is acquainted with those matters knows that it would require a number of dams in succession, on the same stream, to divest the water of its debris. And with the experience already gained in the way of dam construction during the past year, it is apparent that dams in sufficient number and of suf-

ficient capacity and stability, would cost an immense amount of money, and more than is possible to raise for that purpose. Therefore, all projects of impounding the debris by means of dams across the rivers, are utterly impracticable, and the men who advocate the employment of such measures are like the physician who prescribes the soothing anodyne, or the deceptive placebo, whilst the deadly malady runs its course.

There is one measure only which will put a stop to this destruction of the Sacramento valley and arrest the threatened ruin of San Francisco harbor, and that is to wrest from the hydraulic mines the exclusive privileges which they assume, and which they have hitherto been allowed to enjoy, and compel them, in accordance with the law which prevails elsewhere in all civilized parts of the world, and in this State is applied to all other classes of citizens, and to every other industry, to so manage their property as not to destroy or to cause injury to the property of other people.

Geographers estimate the entire area of the earth's surface at 196½ millions of square miles, of which 146 millions, or nearly three fourths, consists of water; and after deducting from the remaining 50½ millions of square miles, the uninhabitable arctic regions, the unproductive deserts and rugged mountains, there is left but comparatively a small area which will repay the tillage of the husbandman. And as the earlier civilized parts of the world have already become fully populated, and some of the older countries overpopulated, to the extent that thousands, and sometimes millions, perish annually from lack of subsistence, it is therefore obligatory upon all nations, and especially upon the enlightened, to preserve carefully their productive territory; for if we are not able to send of our surplus to the suffering poor of those distant countries, or if they are not able to come and occupy of our abundance, the acreage which we do not need for our immediate wants, but for a few generations hence, our own State, with its mild and healthful climate, will teem with its millions of human beings burdened with the same wants and necessities, endowed with the same capabilities of enjoyment, and affected with

the same susceptibilities of suffering and grief as ourselves. To the statesman, then, I would say: Here is a matter worthy of your earnest attention and most solicitous consideration. To the philosopher and evolutionist: Here is an opportunity to array yourself in support of the beneficent processes of nature, and to discountenance this ruthless war upon her sacred works. To the Christian: Here, within our own borders, is a sect who worship and obey the behests of a god which is more destructive than Moloch of the valley of Hinnom. Is it not your duty to arrest the progress of this heathenism? And to all patriotic citizens, and to every philanthropist, of whatever creed or belief: Here is a service to perform—a labor of love in behalf of this State, and in the interest of humanity, which justice to the present and sympathy for future generations, will not permit you to ignore or evade.

REPORT OF COMMITTEE ON HYGIENE.

By F. W. HATCH, A. M., M. D.

MR. PRESIDENT AND MEMBERS OF THE MEDICAL SOCIETY OF THE STATE OF CALIFORNIA: The first inquiry naturally suggesting itself to the mind of an individual seeking a home for himself and family, is as to the healthfulness of the locality. What are its prevalent diseases? What is its death-rate?

These questions are becoming more and more pertinent every year. A new impulse has been given to hygienic studies, and thoughtful men of all classes, in and out of the profession, are awakening to a sense of their importance. They are beginning to regard their satisfactory answer, as essential to their higher welfare, of more consequence to the ultimate well-being of themselves and those dependent upon them, than any considerations which involve merely their temporary pecuniary interests.

This sentiment—this growing disposition among the members of the community—is one of the fortunate results of the increased attention paid of late years to sanitary subjects, to the gradual diffusion of knowledge among the people by health-tracts and health-books, and by the public press. Men have learned that diseases are not all inevitable; that different climates favor different diseases; and that even in the same climate, a vast discrepancy exists as to the prevalence of disease, according to the attention paid to the investigation of its causes and to the means of correcting or removing them.

It is profitable, too, to us as physicians, to have arrayed before us from time to time, the doings of disease and death in our midst, to study the principal causes of mortality, to know the localities where diseases most prevail, the different

forms of disease attributable to different sections of the State, and to endeavor, if possible, to trace their connection with existing violations of hygienic rules.

The medical history of the past year presents few features of remarkable interest, it is true, beyond the fact of the epidemic of variola which has been prevailing with more or less intensity, as shown by the records, for the past six months. Yet even in the consideration of this, we find much reason for congratulation in the knowledge that what at first seemed to threaten to become an epidemic of rapid progress and malignant form, likely to involve in its destructive march all the thickly settled portions of the State, has, up to this time, confined its energies to only a few localities, and has, even in these, been kept greatly under control. The effectiveness with which this result has been brought about, reflects credit upon those by whom measures of prevention were conducted, and confirms our faith in the protective virtues of vaccination.

The first death reported from smallpox was in October, 1880. It had previously been reported as a disease from San Francisco, Oakland and Stockton. Its presence in San Jose had at this time also been mentioned, and a single case from the mountains was admitted into the pest-house at Sacramento. In the following month, information was received of the appearance of the disease near St. Helena, in Jackson, and Willows, and in a country settlement a few miles from Sacramento. In all these, the origin of the disease was in San Francisco; it was limited to a few cases, having become epidemic nowhere except in the latter city. Even there, it has borne no proportion in extent of diffusion and in fatality with epidemics which occurred in former years.

There can scarcely be a doubt that this result has been due to the energetic means taken by the health authorities, to the isolation of the sick, the vigorous attacks upon its strongholds in the Chinese quarters, and the prompt enforcement of vaccination. Probably, at no previous period in the history of the State has vaccination been so generally resorted to.

Public vaccinators were appointed in several cities for gratuitous service for all willing to submit to this simple expedient; the school authorities made it obligatory upon all in attendance upon the public schools, except upon the presentation of a certificate, given by competent medical authority, of previous protection; and large numbers eagerly solicited its benefits at the hands of their medical advisers. The result has been in the highest degree gratifying, and strongly confirmatory, if such confirmation were needed at this day, of the inestimable value of the discovery of Jenner.

It is not designed, however, to present a complete history of the epidemic diseases of the year under review. This subject legitimately falls within the duties of another committee.

The following table, compiled from the reports made to the State Board of Health, affords a condensed view of the mortality of a large portion of the State, so far as it has been affected by *prevalent* causes—causes, most of which are of special interest to the sanitarian. It comprises twenty-five localities in different parts of the State, and embraces a population of 377,070:

TABLE NO. 1.

Abstract of the Reports of Deaths and their causes, in the following Cities and Towns of California, during the Year ending December 31st, 1880.

CITIES AND TOWNS.	Total deaths	PREVALENT DISEASES. Consumption	Pneumonia	Bronchitis	Influenza	Other Diseases of Lungs	Diarrhœa and Dysentery	Cholera Morbus and Cholera-Infantum	Other Diseases of Stomach & Bowels	Diphtheria	Croup	Scarlatina	Measles	Smallpox	Whooping-Cough	Typho-Malarial Fevers	Typhoid Fever	Remittent and Intermittent Fevers	Cerebro-Spinal Fev'r	Alcoholism	Erysipelas
San Francisco—49 weeks	4093	725	329	82	...	79	35	66	89	43	22	15	23	29	44	16	79	11	13	51	7
Sacramento—12 months	369	41	38	2	...	10	2	7	11	5	2	4	3	...	5	5	12	7	2	4	..
Stockton—6 months	67	11	...	1	...	...	2	1	...	...	...	1	...	4	...	...	...	...	...	...	..
Marysville—12 months	70	34	23	4	...	...	...	...	4	2	...	...	...	...	...	...	4	10	1	2	1
Placerville—11 months	8	...	2	...	...	...	...	...	5	...	...	...	...	...	...	...	6	...	...	...	..
Los Angeles—12 months	244	51	15	4	...	4	11	2	10	1	...	1	2	...	1	6	...	2	2	1	..
St. Helena and vicinity—12 months	28	7	1	...	1	...	...	1	1	...	...	1	...	...	...	...	...	...	1	...	..
Merced—9 months	25	4	3	1	...	1	2	4	...	...	...	...	...	...	...	1	...	...	1	...	..
Folsom—5 months	7	...	4	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	..
Richland—12 months	15	1	...	...	...	...	1	1	...	3	...	...	...	...	...	...	1	1	1	...	..
Santa Barbara—7 months	46	12	2	...	...	...	...	...	3	...	...	...	...	...	...	...	1	...	...	...	..
Williams—5 months	5	...	...	...	...	...	...	1	...	1	...	...	...	...	...	...	...	...	...	...	..
Downieville and vicinity—12 months	9	...	1	...	...	...	...	1	1	...	...	...	...	...	...	...	...	...	...	1	..
Antioch—12 months	10	1	2	...	...	...	1	...	...	...	...	...	...	...	...	...	1	...	1	...	..
Sonoma and vicinity—8 months	11	2	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	..
Santa Rosa—10 months	67	11	7	...	...	1	...	4	3	...	...	...	...	...	...	1	1	...	...	...	..
Vallejo—12 months	76	8	13	...	...	3	3	1	4	...	...	...	1	...	1	...	1	1	...	...	..

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Shasta—5 months	9	...	2	...	...	...	...	...	1	...	...	...	1	...	1	...	...	...	...	1	...
Nevada City—12 months	69	1	5	...	...	...	1	...	...	3	...	1	...	...	...	...	2	...	...	6	1
San Bernardino and vicinity—11 months	38	8	6	1	...	...	5	...	1	...	...	...	...	...	1	...	1	...	3	...	...
Ventura—12 months	42	7	6	1	...	1	...	...	6	...	1	1	...	...	...	1	...	2	...	...	...
Chico—12 months	79	9	9	1	...	1	2	8	6	...	...	...	...	...	...	...	1	1	1	1	...
San Mateo County—11 months	59	18	10	...	...	2	...	4	...	1	...	...	...	...	...	...	...	...	5	2	1
San Diego—6 months	27	7	3	1	...	2	...	...	1	...	...	...	...	...	3	...	1	...	...	...	...
Oakland—12 months	454	57	30	12	...	7	7	11	10	8	5	4	2	4	9	9	12	2	1	4	1
Total	5927	1015	512	110	1	111	70	110	161	67	30	28	32	38	65	39	123	37	32	78	11

TABLE No. 2.

Deaths by Consumption and Principal Zymotic Diseases in different sections of the State from January 1st, to December 31st, 1880.

	Total Mortality	Lung Diseases	Diphtheria	Croup	Scarlatina	Measles	Pertussis	Smallpox	Typho-Malarial Fever	Typhoid Fever	Diarrhœa and Dysentery	Cholera Infantum	Consumption	DEATH-RATE PER 1,000 OF POPULATION PER ANNUM. Total by all Diseases	Lung Diseases	Diphtheria	Croup	Scralatina	Measles	Pertussis	Smallpox	Typho-Malarial Fever	Typhoid Fever	Diarrhœa and Dysentary	Cholera Infantum	Consumption
Coast Cities	4738	479	51	28	20	26	57	33	42	94	45	78	816	15.4	1.9	0.07	0.09	0.33	0.04	0.12	0.04	0.17	0.42	0.13	0.12	2.7
Coast Valleys	165	19	1	0	1	0	0	1	1	1	0	9	38	16.1	4.1	0.1	0.00	0.16	0.00	0.00	0.16	0.00	0.08	0.00	0.34	2.7
Interior Valleys	929	114	12	2	6	5	7	4	33	20	24	22	160	11.58	1.8	0.22	0.008	0.41	0.02	0.02	0.6	0.21	0.35	0.35	0.39	2.13
Mountains	95	10	3	0	1	1	1	0	0	8	1	1	1	9.9	1.3	0.15	0.00	0.05	0.14	0.14	0.00	0.00	2.05	0.05	0.18	0.05
Total	5927	622	67	30	28	32	65	38	76	123	70	110	1015													

Notwithstanding the favorable showing made by the statistics of the past year, it is evident that there is yet room for great improvement. In the absence of epidemics, except the very limited one of variola, our death rate ought not to have reached its present proportions. It was some years ago estimated that the mortality, by unavoidable causes, ought not to exceed 14 per 1,000 of population per annum, and as our knowledge of the influence of hygienic measures has increased, as our estimate of the avoidable causes of disease has been enlarged, even this figure, once regarded by a few as a rather bold assumption, may not unreasonably be considered too high. If we consider the advances made in sanitary science, especially in that branch of the science which pertains to the prevention of disease, and which devotes itself to the discovery of its causes, there is certainly no good reason why the ratio of mortality should exceed the limit just stated. The more closely we study the climate of the State as a whole, and in its different sections, when we regard its general adaptation to health, the absence, except in a very few localities, of any natural and inherent local causes of fatal disease, we must become more and more convinced that very much of the disease occurring among us is to be attributed to neglect, to a carelessness in the observance of the laws of health. Among the diseases appearing in the record, properly due to avoidable causes, we find pneumonia, cholera-infantum, diphtheria, typhoid and typho-malarial fevers; and to these may be added the contagious diseases—whooping cough, scarlatina, measles, and variola.

As to the former of these, I think it can no longer be doubted that it should be classed rather as a specific, essential fever, than as an inflammatory disease. I believe it is a zymotic affection, due to causes within our control, and that, as such, it becomes a proper subject for present consideration. There are many reasons for adopting this classification. It bears a close resemblance to the zymotic diseases, is due to similar predisposing causes, and is in close correspondence with them in habits and in relation to hygienic conditions.

It attacks the weak in preference to the strong; old age rather than vigorous youth; those broken in constitutional vigor, by alcoholism, or by affections believed to be dependent upon diseases of the blood, by mental and physical fatigue, by the exhaustive influence of previous severe disease. It is endemic, or epidemic; it is often, in the valleys of California at least, associated with malaria, and everywhere, probably, with sewer-gas. It has a prodromic period, an antecedent stage of fever, more or less prolonged. It is unlike the true inflammations, in that its causation is different, as well as its history; it is self-limiting, having a definite and pretty uniform course to run, which they have not; it is commonly asthenic, requiring sustaining treatment; and it may be sometimes aborted in its early stage by vigorous treatment by quinine. Its association with malaria, or its coincidence in respect of prevalence with malarial affections of low type in the principal cities of the interior valleys of the State, was shown in a paper read by the author, two months ago, before the Sacramento Society for Medical Improvement. In that paper, reasons were also given for the belief in its relation to bad air, to sewer-gas, the inference being drawn that while, in one individual, these invisible agents would be productive of typho-malarial fever, or sewage fever, for example; in another, there would, under the appropriate exciting cause, occur pneumonia; that in either case, there is in the circulation an offending material to be eliminated, and that the phenomena of the disease are due to the presence of this material and the effort of nature to get rid of it.

It is not intended, however, to pursue this subject here. What has been said has been mainly with the view of justification of the association of pneumonia with the zymotic diseases, and in evidence of its legitimate relation to the subject of hygiene.

If it is right to ascribe, as has been done above, the whole class of zymotic diseases to causes generally preventable, if they are indeed under the control of sanitary measures, the interesting question naturally arises: How is this important

end to be accomplished? It will be impossible, in this report, to enter upon, at any length, or even to allude to all of the many conditions conducing to this result. The same rules do not, in fact, apply to all; but generally, we have learned that the remedies are within the reach of every one. They comprise those general precepts which are everywhere recognized as being conducive to health. They have for their foundation the avoidance of *filth*—filthy air, filthy water, filthy soil; most of them find their application in the *dwelling* and its surroundings; they affect places, which of all others, should be most sacredly respected—the homes of the people of the State.

This single subject is in itself one of the very greatest interest. It involves considerations which, more than all others, affect the health of every community. It embraces the *locality* of the habitation, its exposure to sunlight, its ventilation, the dryness of the soil and its freedom from saturation with fluid or solid contents of privies or cesspools, the cleanliness of the cellar and its drainage, the water used for household purposes, the cesspools and privies, the water-closets and their ventilation and traps; the soundness and efficacy of the soil-pipe, the bath-rooms and sinks, and the protection of pipes leading therefrom by proper traps. These are some of the important considerations to which the attention of every citizen should be directed, and upon which, so far as the zymotic diseases are concerned, the security of the household may depend.

It has been estimated that during 1870, over 100,000 lives were lost by diseases which might have been avoided—diseases due to insanitary surroundings and to the violation of sanitary laws. Such were, directly or indirectly, the deaths by typhoid fever and diphtheria; such, those by cholera-infantum, and by alcoholism; such too, to a certain extent, those by scarlatina and perhaps other contagious fevers.

It should be the duty of every physician to call attention to these things; to seek to enlighten the public mind thereon, and to endeavor not only to cure disease, but to prevent it.

This, it is true, is the special office of the sanitarian, but to this extent every physician should be a sanitarian.

It is true that the etiology of all the diseases commonly classified as *zycotic* is not yet fully settled. Diphtheria is one of these, or rather it is not yet fully determined to what extent different factors often considered as among its causes are to be held responsible for its occurrence. It is believed by many to arise solely from a specific germ, capable of reproducing this disease only; yet few will nowadays deny its contagiousness—few will deny that it is somehow favored by insanitary conditions, by foul air and water, by the emanations from soil saturated with moisture and filth. The evidences favoring this latter view seem at the present time incontestable.

It is not my intention, Mr. President, to do more than glance at the several propositions which the subject suggests. This brief outline will perhaps be sufficient to direct attention thereto. The appropriate remedies will, I know, be well understood by the members of this Society.

Against the truly contagious fevers, we have already seen how effectually the protective power of vaccination has been invoked during the past year against one of the most loathsome and virulent of them all. Against others, we have, unfortunately, no such protecting agent; but we may resort to other measures which, if not equally effectual, will, when faithfully carried out, afford excellent results.

We have *isolation*, *ventilation* and *disinfection*. By the former, we may exclude the poison from contact with us; by the second, we may so dilute it as, if not altogether to render it inoccuous, at least to modify its infecting power. By the third we may sometimes destroy it.

Measles occurred, during the last winter, in one of the orphan asylums of this State. No precaution was taken to isolate the first case from the other children of the institution. The child slept in the same ward with the others, as usual, and, during the day time, there was free and unrestricted access to the room. Other cases followed, until not less than *fifty* children had been stricken down; yet, it is said, that throughout its

continuance, by some strange infatuation, some superstition, or perhaps from the idea we sometimes hear advanced that such diseases are a dispensation of Providence, and that as good Christians it is our duty quietly to submit, no precaution against the communication of the disease was at any time taken—no attempt at separation of the sick from the well. The disease was finally starved out—it exhausted itself for want of material. Directly or indirectly, several children were said to have fallen victims to this gross and inexcusable neglect, most, or all of them, from a pulmonary complication.

Per contra: A year ago a case of scarlatina occurred by importation in a town in this State, and was communicated to some children attending school. The situation was favorable for the epidemic prevalence of the disease. Measures of *isolation* were at once commenced by the local Board of Health: intercourse with the affected houses was prohibited, the school was temporarily closed, and the disease was "stamped out."

Which of the two cases is the more worthy of imitation? The time has gone by when it can truthfully be said that we have no means of preventing the spread of these diseases—that children will have them in defiance of all efforts at prevention. The idea is a relic of the ignorance of former days, and leads to an apathetic unconcern in the avoidance of contagion, an indifference almost as indefensible as the practice of the voluntary exposure of children to disease upon the theory that the sooner they have it the better. Yet, how many have lived to old age without having scarlatina!

Consumption is another disease which figures largely in the death record before us—more largely than legitimately belongs to the State. California has attained abroad some reputation as a health resort for consumptives, and if we regard the early stages of the disease and certain suitable localities, justly so. But invalids in search of health do not, unfortunately, always consider the stage of their disease; nor, if we can credit their statements, do their medical advisers at all times weigh well the consequences of a change of climate or the probabilities of improvement by any known means. Hence, many come

among us to die, and unless they have means to support themselves at some of the really excellent health resorts to be found in different sections of the State, remain in the cities, notably in San Francisco, and too often become subjects of charity within the walls of the hospitals. Of the victims of consumption, the best information obtainable by the State Board of Health, shows but few deaths among our native *white* population, and of those that occur many are the result of hereditary influence. Facts bearing upon this subject require further investigation, and we must for the present content ourselves with an earnest protest against the inferences which might be drawn from the simple announcement made by the record of 1,015 deaths by consumption in a population of 377,070—or 2.69 per 1,000.

What has been said, Mr. President, has been intended rather as a running, and by no means connected commentary upon the statistical record of the past year, and some of the diseases which it comprises, than as a methodical and exhaustive discourse upon any one topic. It is designed to be suggestive of existing defects—indicative of things needed to bring our death rate down to a better standard—to that standard which, in view of the many climatic advantages we possess, our State ought to exhibit.

REPORT OF COMMITTEE ON MENTAL DISEASES.

BY G. A. SHURTLEFF, M. D., CHAIRMAN.

Ever since California, under the influence of gold discoveries, became generally peopled, it has had the reputation of containing an unequal ratio of insane persons. The really rapid development of insanity in our State, and the publicity given to the examination and commitment of the insanse to our public institutions for their care, naturally lead to an exaggerated conception of the extent of the malady and of the increase and number of its victims. In a more tangible and misleading form, this exaggerated popular impression has received apparent confirmation from fictitious statistics, made up from estimates based on conditions which are not applicable to our State and times. And now, before the effects of past misrepresentations are removed, our State is again made to appear to have more insane than really belong to it, on what would generally be taken as indisputable authority—the last census returns.

The insane of both the State of Nevada and the Territory of Arizona are enumerated in California, and reported as belonging to this State. Suspecting from circumstances that such might be the case, a few days ago I wrote to the Superintendent of Census at Washington for the number of insane in California and Nevada, respectively, according to the tenth census. The figures in the answer are as follows:

Number of insane in California, 2,417; number of insane in Nevada, (three) 3!

The insane of the State of Nevada and of the Territory of Arizona are kept by contract in a proprietary establishment in San Joaquin County, Cal., called the "Pacific Asylum." I

am officially furnished with the number of patients in this asylum through the courtesy of its Superintendent, as follows:

From Nevada	148
From Arizona	14
From Idaho	1
From California	1
Total	164

Thus it is seen that California is entitled to a deduction of 163 from the census figures of 2,417, which leaves 2,254 as the number of insane in the State in June, 1880.

The population of California at the same time, according to the census returns, was 864,686. This gives for the State one insane person to every 383 of its general population. This is a large proportion for so young a State. It is considerably larger than the average of the United States, as shown by the census of 1870 (which, however, is admitted to be incorrect and too low), and it may possibly prove to be higher than the ratio in any other State in the Union by the more accurate enumeration of 1880, the returns of which, in this department of statistics, are not yet published. But it is not only equaled but surpassed in some countries of Europe—in England, Wales and Scotland, for instance, where, on the first of January, 1880, the proportion of the insane to the general population was nearly one to every 300.

Of the 2,254 insane persons in the State in June, 1880, 1,955 were in the two State Asylums, and 1 in the "Pacific Asylum," leaving 298 somewhere in the community at that time. The reply to my inquiry, also reveals the fact in advance of its publication, that the census returns of 1880 will show that we have 333 idiots in California. If we add these to the 2,254 insane, it will be seen that we have a total of 2,587 persons of unsound mind in the State, which is one to every 334 of the general population. In considering these figures, it will be borne in mind that they represent both the

general population and the insane in the numbers respectively which existed in June, 1880. Both classes are increasing, and the latter is gaining somewhat in its numerical relation to the former, but not fast enough to make any considerable change in their ratio in so short a time. Thus the reality gives us an unenviable distinction for the number of our insane, and we cannot afford to be shown up by sensational statistics, or to have the insane of our neighbors counted in with our own.

In fact, the insane of the State of Nevada have always been enumerated in and returned as belonging to California. The Ninth United States Census Returns (1870), show that there were only two insane persons in the State of Nevada at that time, when the truth is, the insane of that State were then in the custody of the writer of this report, in the State Insane Asylum at Stockton, and were by him in person delivered to the proprietors of the above named "Pacific Asylum," on the 15th day of July, 1871, where the insane of the State of Nevada have ever since been, and are now, kept.

The apparent increase of insanity, with the progress of civilization, has elicited merited attention from alienist physicians and social scientists. There is no doubt that the more artificial and complex modes of occupation and living in our modern civilization—the eager pursuit for wealth and position, the stimulation of an inventive and speculative spirit, the restless struggle to gain or hold eminence in all the vocations of life, even in its extravagancies and sensual enjoyments, tend to cerebral exhaustion and mental disorder. But the increasing ratio of the insane to the general population, in the more enlightened states of modern society, is in a large measure owing to the more humane and improved methods for their care and treatment. Their longevity is increased. They accumulate by preservation. It is not overlooked that a greater percentage of recoveries, in some degree, should counteract the operation of this cause of increase. But it does not fully. It is also well known to the alienist and social scientist that the number of the insane in any of the political divisions of the world, including even the United Kingdom, France and

Germany, as well as the United States, was unascertained thirty years ago, and hence was not fully exhibited in their statistics, while, since about that time, the enumeration has been becoming more full and gradually approaching completeness. The increase therefore presented by statistics is attributable more to the discovery of the number of the insane, than to the actual difference in their number between now and earlier periods.

It is not possible within the space properly allotted to a report of this kind, to embrace the subject of the general treatment of mental diseases. Insanity is a generic term, and it involves a vast variety of pathological conditions of dissimilar character. The curative agents, as well as the palliative means, must be adapted to these variable states. Generally, it is a disease of exhaustion of the power of the nerve centers employed in mental operations. This is the case no less in cerebral hyperemia than in an anemic condition of the brain, the fullness being a passive congestion resulting from the lost tonicity, or the spent force of the cerebral vessels. In both cases there are defective nutrition and repair. Exhaustion of the force-generating function of the brain, with mental failure and disorder, is the consequence. It is obvious that the indication is to replenish and strengthen the impoverished and weakened organ. Physical nourishment and mental rest are necessary to accomplish this, and the best directed efforts will be aimed to this end. True science and skill in treatment consist in the adoption of the best means to fulfill this indication.

Were I called upon to state the most common and observable difference between the practically experienced specialist and the general medical practitioner in their treatment of the more violent and demonstrative forms of insanity, I would say, it consists in a greater readiness, on the part of the former, to resort to the free use of narcotics and hypnotics, with a view to a prompt relief of the characteristic distressing manifestations, while, on the part of the latter, there is a growing inclination to avoid the employment of these drugs, so far as

[illegible]

[illegible]

[illegible]

There is, however, much of the *beau ideal* and theoretical in some of the views expressed on lunacy reform. This is probably to be expected in most reform movements. It may be necessary to have an ideal standard of perfection, in order to reach the highest practical point of improvement and excellence. One of the foremost demands of some of the reformers is the absolute abolition of mechanical restraint. In the present crowded condition of our asylums in California, and the insufficiency of single rooms adapted to the care of certain cases, I do not think it possible at present to entirely discontinue the use of mechanical restraint with safety. But I believe it could be done, were the accommodations in the structure of the buildings, and the number of attendants specially provided for it. With regard to any restraint, the rule should be, to use as little as possible, and that only for the welfare and safety of the patient, and not for the ease and security of those who have their immediate care.

But before the advocates of absolute non-mechanical restraint have achieved a full triumph, we are told that the asylum doors must be left open, so that the inmates will not have the disagreeable sensation of being locked in—confined, and the feeling so repugnant to Americans, that they are deprived of personal freedom. Then comes, with as much justice, the denunciation of the so called "chemical restraint." In the face of its praise by some of the most zealous opponents of mechanical restraint, we are informed by an experienced English alienist physician, in the last number of the *Journal of Mental Science*, that hyoscyamine is no better than the garotte—that the garotte "is less dangerous than hyoscyamine when given in the toxic doses which have been advocated." The author adds: "Let me commend the garotte to the notice of the advocates for 'chemical restraint,' as at least a justifiable alternative." On all these questions, if the insane be well managed and treated, there will be some intelligent and practical discrimination, some sound individual discretion exercised, independently of the prejudices and fashions of the hour, or the ideal standards of extremists.

REPORT ON OPHTHALMOLOGY.

By A. M. WILDER, M. D., Chairman.

Mr. President and Members of the Medical Society of the State of California: The late Dr. Toland, in the second and last edition of his lectures on surgery, published by Lindsay & Blakiston, in the year 1879, says on page 406: "The reason I did not omit the diseases of this organ (meaning the eye), is, that the treatment of them is not half so efficient and effectual as it was twenty years ago." And again, on page 407: "Unfortunately the diseases of the eye, both in this, and in other cities of the United States, are treated by quacks, many of whom do not understand the anatomy of the eye, and are entirely ignorant of the treatment necessary in every case."

In face of so remarkable an assertion, it would seem almost heresy, if not a farce, to attempt to make any report upon "Advances in Ophthalmological Science." It would only be necessary to refer you to the work in question.

The discovery and application of the ophthalmoscope, which has undoubtedly enabled us to come to the rescue of a large number of cases that had formerly been relegated to the list of hopeless incurables, under the generic term of amaurosis, was perhaps a step backwards in the progress of the world; and the classic work of Donders on refraction and accommodation, which opened up the means by which vast numbers of hypermetropes, myopes, and astigmatics, have been restored to normal vision, should possibly be regarded in the light of a public calamity; and the number of earnest, thoughtful men, who have been conscientiously devoting themselves, in

different parts of the civilized world, to the investigation and elucidation of those defects and diseases which have for their effect the deprivation, to a greater or less degree, of the sense of sight, would seem by the decree as stated, to have been spending their lives to no purpose.

The amount of this work, however, that is being done, the number and character of the journals entirely devoted to publications upon this branch of medicine, together with the great number of articles upon the subject appearing in the various medical and scientific journals, to say nothing of the number of text-books devoted to diseases of the eye, would, I imagine, have astonished Dr. Toland, had he been aware of the same, and would undoubtedly be a matter of some surprise to most of those present.

Unfortunately, not only for the medical profession, but also for every other department of science, the Pacific Coast is distant from the literary centers; there are no public libraries here containing the various scientific publications of the world, and the individual members of the medical profession, at least, are not, as a rule, in a financial status to supply the want; it is not, therefore, particularly easy to keep thoroughly posted in the researches that are being made.

This want of a library for works of reference is at once felt when one sets himself to make a report upon progress in any one direction of scientific investigation.

From a publication just entering upon its third year of existence, "The Index Medicus," a publication which I deem as valuable to every professional man as is a catalogue to a large library—and which may be cut short at the end of the present year, by reason of inadequate support—I have taken the following exhibit of publications on the eye and its various diseases, covering a period of one year, from January to December, 1880, inclusive:

1.	General Ophthalmology	297
2.	Diseases of the Choroid, Retina and Optic Nerve	67
3.	" " " Conjunctiva	65
4.	" " " Cornea	71
5.	" " " Eyelids	41
6.	" " " Iris	42
7.	" " " Lens. Capsule (Cataract)	99
8.	Functional Diseases and Explorations	240
9.	Glaucoma	34
10.	Tumors of the Eye	56
11.	Wounds and Injuries	66
12.	Surgery of the Eye	70
13.	Lachrymal Surgery	17
	Grand total	1,165

From the "Archives of Ophthalmology," edited in English and German, by Dr. H. Knapp, New York, and Dr. J. Hirschberg, of Berlin, I have made use of the collation by Dr. Swan M. Burnett, of Washington, D. C., of American contributions to ophthalmology, covering a period of about a year past.

This list is not a complete one, a number of publications not appearing that are noted in the "Index Medicus:"

For the latter half of 1879	30	publications.
For the first quarter of 1880	30	"
For the second quarter of 1880	27	"
And for the third quarter of 1880	17	"
A total of	104	"

From the same source, I find in the number for March, 1880, a translation by Dr. R. D. Born, of New York, of a report on the progress of ophthalmology, made by Dr. H. Magnus, of Breslau, and Dr. A. Nieden, of Bochum, in which 255 publications are noted, with the subject matter of the same, for the first half of 1879. In the June number of the same Journal, the number of publications for the first half of 1879 is increased to 475. In the September number the publications for the latter half of 1879 swell the figures to 626. And the December number closes the publications of 1879 with the grand total, 990. These exhibits convey some idea

of the activity that is being manifested in the one branch of ophthalmology, and which is very largely the direct outgrowth of the marvelously increased facilities which the discovery and application of the ophthalmoscope has given for examination of the deeper parts of the eye; and to the labors of Donders and others, in determining and measuring refractive and accommodative defects of the eye.

Of course, much has been found out and placed in its proper position in relation to the grand aggregate, by clinical observation and experience; notably, Graefe's great discovery that iridectomy was a cure for many causes of glaucoma, the various modifications of cataract operations, etc.

Much still remains to be discovered and explained. Questions of great importance are still unsolved, and the best thinkers and workers in ophthalmic science are not yet settled upon such questions as the causes and prevention of *sympathetic ophthalmia; sclerotomy*, and other measures, as a substitute for *iridectomy* in cases of glaucoma; *optico-ciliary neurotomy* as a substitute for enucleation of a lost and painful eyeball, etc.

The limits of this report will not admit of more than a passing glance at the general work that is being done.

It is sufficient to say that the friction of so many earnest investigators cannot fail to clear up many uncertainties now existing, and to place ophthalmic science upon the pedestal that its great importance to the human race demands.

I shall bring to your attention a few of such defects and diseases of the eye as appear to me of most practical importance to the general profession and the community at large, and will begin with sympathetic ophthalmia.

Sympathetic ophthalmia is that condition, where, one eye being diseased, or suffering from some injury, or foreign body producing irritation, or from inflammations following operations, the other eye, without any apparent cause, becomes the subject of inflammation, which is often more insidious and more destructive than the trouble in the first eye, and which most frequently results in total loss of vision in the second eye.

Mauthner, of Vienna, the latest and most exhaustive writer on the subject, says: "There is hardly a second domain of ophthalmology that has so important a practical bearing. Upon no other subject of ophthalmological practice does the physician require not only his own personal experience in such cases, but also confidence in the experience of others. There is hardly any other field in which so much depends on the doing or not doing, as in sympathetic diseases of the eye, for here stands the question in a nutshell, not concerning the good or bad of one eye, but whether the individual shall be given up to total blindness, or the power of seeing at least in one eye, shall be wholly or partly preserved.'

It is the generally accepted idea at the present time, that the cause of this secondary inflammation is a neurosis, and that it is principally propagated through the ciliary nerves. It is this belief that has led to the introduction of optico-ciliary neurotomy, with the idea that severing these nerves in the first eye would prevent the development of the disease in the second, and one of the objections which has been made to this operation has been based upon the possibility, and even probability, of reunion of the severed nerves, and for this reason it has been advised that a portion of the continuity of the nerves should be removed.

It is well known, however, that neither this operation, nor enucleation even of the eye, will always prevent the occurrence of the sympathetic disease, nor has any one been able to tell at what precise time operative interference is demanded, in case of an injured eye, as a measure of salvation for the remaining eye.

Many a conscientious ophthalmic surgeon has been unjustly criticised and blamed, even by members of the medical profession, for advising the immediate removal of an eye, penetrated by a piece of steel, or some other foreign body, which could not be removed, such advice being based upon the thought that the risks and dangers to the good eye, from sympathetic inflammation, were too great to hazard the attempt to save the injured organ. On the other hand, it is quite proba-

ble that unscrupulous and ignorant persons have grossly abused this argument, in persuading their patients to submit to an enucleation as the only possible means of preserving one good eye.

I have never been satisfied with the explanations given as to the causes of sympathetic ophthalmia, so far as the same referred to the direct action of the ciliary nerves; for these latter are given off from the nasal branch of the ophthalmic division of the fifth pair of nerves, accompanied by branches of the sympathetic, and are unconnected except at their common center of origin in the brain; and if reflex irritation should produce sympathetic inflammation in one instance, why should it not be the case in all?

That sympathetic diseases may be propagated through the optic nerves, could more readily be understood, by reason of the intimate relations of the fibres of the two nerves through the chiasma.

Believing the eye to be a modified prolongation of the brain, carrying along with it its anolagous membranes, I have for a long time regarded the sclerotic coat of the eye as the direct continuation of the dura mater; and the choroid, ciliary body, and iris, as the direct continuation of the pia mater, forming together the uveal tract. Having these views, I was much impressed by a long article on *iritis serosa*, with some remarks on sympathetic transmission, written by Dr. Max Knies, Assistant Surgeon to the Ophthalmic Clinic at the University at Zurich, and which, translated by Dr. James A. Spalding, of Portland, Maine, appeared in the June number of the *Archives of Ophthalmology* for 1880, under the head of "Contributions to the Knowledge of the Uveal Tract." The article in question is based upon a case of *iritis serosa*, occurring in the author's practice in the hospital at Zurich, and which died from laryngitis and pneumonia, while still under observation. The eyes were carefully removed at the autopsy, and were subsequently closely examined, both anatomically and microscopically. The results of these examinations are given at great length in the paper, which the

scope of this report will not permit of more than reference to. The conclusions, however, which Dr. Knies has drawn from this anatomical examination, in the course of which very unexpected discoveries were made, appear to me so important, as affording a starting point for the elucidation of the obscurity which has surrounded sympathetic ophthalmia, that I have not hesitated to quote extensively from his paper, believing that it is a genuine advance in ophthalmic science.

After minutely describing the processes and the immediate results thereof, he finds "a second, and apparently quite independent center of inflammation in the optic nerve, and particularly in the pial sheath; the ophthalmoscope proves that this slight but undeniable neuritis is rarely, if ever, absent in iritis serosa."

In his specimen he found "the neuritis pretty well defined against the retina, while in the latter, nothing abnormal could be discovered, except a few lacunæ in the most anterior segment, and the marked formation of folds all over the fundus oculi. These alterations of the retina indicated the undoubted presence of a moderate œdema during life, and with the infiltration of the optic disc, were due to the disturbance in the current of the retinal veins."

"The most striking point, however, was the pronounced cellular infiltration of the pial sheath from the optic disc to the chiasma. Since both of the nerves were excised precisely at the chiasma, and the infiltration of the pial sheath at the excised end showed not the least trace of decrease, but rather an increase within the cranial cavity, *there is no doubt but that the affection in both eyes is continuous and connected.*"

"Who could imagine," he says, "even on removal of the globe, that an affection hitherto located in the most anterior portions of the eye, would have to be traced along into the chiasma."

His suspicions of an affection of the optic nerve were at first so completely absent, that he was intending to make cross sections of the supposed normal optic nerve of the second eye, to compare with preparations from the optic nerve of the

first eye. While thus occupied, he discovered "the intense cellular infiltration of the pial sheath, after he had imagined the examination of both eyes quite completed.'

After a discussion of neuritis as a symptom of choroiditis disseminata, and iritis serosa, he goes on to say: "If we consider that the pial sheath of the optic nerve, as well as the choroid, are analogous to the pia mater of the cerebrum in origin and function, we need not be surprised at this seemingly paradoxical transmission of an inflammation from one membrane to another; hence it follows that we should recognize "iritis serosa" as a disease exhibiting itself as a continuous affection of both eyes. The clinical and anatomical inflammation center, lies, it is true, in the *iris, ciliary body, and the other tissues adjoining the corneo-scleral junction;* but we can follow the inflammatory appearances through the *choroid, optic disc,* and *pial sheath* of the *nerve,* to the chiasma, where the two affections come into contact."

Iritis serosa he regards "as an exclusive affection of the uveal tract in a wider sense," since he holds "the pial sheath of the nerve as included in this term. All affections of the other structures of the eye, the retina, cornea, vitreous body, and eventually of the lens, are secondary, and so to speak, of a passive nature."

Passing over several pages devoted to a further discussion of these points, we come to this proposition: "If we now note the circumstance that *iritis serosa represents a continuous affection of both eyes along the pial sheath of the optic nerve,* we can easily explain a whole series of peculiarities which appertain to sympathetic inflammation of the eyes; its appearance after a certain space of time; its occasional commencement as neuritis; its outbreak in spite of the enucleation of the eye primarily affected, and the impossibility of cutting short the process when once begun, by the removal of the wounded eye; we do not have to assume that a certain hypothetical alteration appears at some unknown spot from irritation of the ciliary nerves, which then alone causes the affection

of the other eye; the simple paths of continuous and advancing inflammation, long since indicated, can do the same."

He quotes from Mauthner's lectures on sympathetic ophthalmia, as follows: "Let us suppose that the ophthalmoscope revealed to us a retinitis and neuritis in the eye sympathetically affected, and that we were justified in assuming that the retina and optic nerve of the eye *first* affected also suffered from an inflammatory process—which latter we are generally unable to ascertain on account of the changes in the vitreous—we should not need a profound theory or the bringing in of other obscure symptoms from other regions of pathology, in order to understand such a condition. It is all one and the same thing for our present consideration, whether the process after reaching the chiasma advances or not toward the center of the visual organ, in the tractus opticus concerned; but this much is certain, that so soon as the fibres of the second optic nerve are attacked in the chiasma, the inflammatory process there present can spread not merely toward the tractus but also toward the globe. The simple invasion of the choroid by inflammation from the retina is so common, that if a corresponding view could be allowed in the case of sympathetic uveal affections, all the obscurities of the latter disease would disappear, and sympathetic inflammation could be regarded simply as propagated continuously and 'per contiguum' through the chiasma from the irritating eye. Yet, although the affection of the optic nerve in the first and secondarily affected eye is still too little appreciated, it is a fact that sympathetic iridocyclitis does *not* originate in this way; irritative and inflammatory conditions are propagated along the optic nerve, from the opticus retina, while the inflammatory processes which are observed in the regions of the eye pervaded by the ciliary nerves, principally in the uveal tract, are propagated along the ciliary nerves."

Knies says that "all these conclusions of Mauthner are based merely on clinical conditions, and almost exclusively negative, pathological and anatomical conditions, the latter, which alone could throw light upon the matter, have hitherto left us in the

lurch; and Mauthner, after mentioning the whole series of possibilities concerning even the ciliary nerves, without deciding directly for one or the other view, thinks, that dark and complicated as the method of propagation of the inflammatory process along the *ciliary* nerves may now seem, the matter is relatively simple in the case of the optic nerves."

Knies concludes from his examinations that, "the simplest mode of explaining the process is the most correct, and that if, as seems probable, the transmission of disease from uvea to uvea, by intervention of the chiasma, can be proved, sympathetic ophthalmia looses its individuality amongst diseases of the eye, and all the secrecy and obscurity that up to this time has enveloped it. That the name 'sympathetic ophthalmia,' which in its allusion to the specific energies of the nerves, included the idea of a pure reflex neurosis, must yield to the purely pathological and anatomical title, 'uveitis bilateralis continua,' which at the same time also explains the clinical symptoms in the most satisfactory manner."

In the *New York Medical Record* of February 12th, 1881, appears a clinical lecture on inflammation of the uveal tract, by Dr. D. B. St. John Roosa, Professor of Ophthalmology in the Medical Department of the University of New York.

Dr. Roosa is working in the same field as Dr. Knies, and will doubtless reach similar conclusions with reference to the etiology of sympathetic inflammations. Speaking of iritis, he says: "Instead of saying iritis as much as we do, it would be better to say, inflammation of the uveal tract; for it is seldom that iritis stops at the limits of the iris; it is very seldom that cyclitis is limited to the ciliary body; and choroiditis, though more commonly limited, does not infrequently extend beyond the choroid; yet less rarely than does iritis or cyclitis extend beyond the boundaries of the iris and the ciliary body. All of these diseases may extend the one into the other. The tissue is substantially one from the iris back into the choroid." Dr. Roosa further says in his lecture, that the causes of iritis are principally syphilis and rheumatism, and that while Dr.

Wecker would credit the former with seventy per cent of the cases, he, Roosa, would make the percentage still higher.

In a paper by Dr. Lawson, on sympathetic ophthalmia, which appears in *Braithwaite's Retrospect* for January, 1881, he summarizes its character thus:

"*First*—The disease is induced in one eye, by irritation set up in the other, generally either the result of injury or from degenerative changes going on in a damaged or lost eye. The disease usually commences *without* pain as a warning, though it is commonly preceded by a certain amount of irritation, slight photophobia, impairment of accommodation, sufficient to give rise to fatigue of the eye, and lachrymation. One or all of these symptoms may be present, and in an adult would probably draw attention to the state of the eye; but in a child, they are not, as a rule, sufficient to lead him to make complaint; so that in children, the disease is not infrequently far advanced before it is detected.

"*Second*—The inflammation is either fibrinous or plastic, and he believes it to start in the ciliary region, and to extend simultaneously to the iris and choroid. He has never seen a sympathetically inflamed eye suppurate.

"*Third*—After a variable period, the tension of the globe increases, and in this stage there is pain, which is sometimes very severe. If the disease be very acute, ciliary staphyloma will occur at this stage. This increased tension may continue for months, and when staphyloma has commenced, it will go on increasing. In the majority of cases, however, the staphyloma does not occur, and after a variable time the excessive tension subsides, then becomes normal, and ultimately the eye softens. The eye is then irretrievably lost."

Dr. Lawson's experience convinces him, that "if sympathetic ophthalmia has taken place in the sound eye, removal of the injured or diseased one will not arrest the progress of the same. If there be reason to apprehend sympathetic inflammation, early removal of the injured eye is demanded."

"Sympathetic *irritation* may be arrested by enucleation of the original eye."

It often occurs that after sympathetic ophthalmia has run its course in the second eye, the only visual power the patient retains is in the originally injured or diseased one.

Dr. Lawson says that, "in the curative treatment of sympathetic ophthalmia we have much to learn; that at present we can do but little, as there is no means known by which the disease can be controlled with any certainty. Where tension has commenced, active interference is imperative to preserve any vision."

Dr. Lawson has always found iridectomy unsuccessful in this class of cases; the iris either being so rotten that the forceps failed to hold it, or so tough and fibrous, that in either case no portion could be satisfactorily removed.

During the past eight months he has resorted to the operation of sclerotomy, with the results of which he has so far been well satisfied.

Sympathetic ophthalmia not infrequently follows cataract operations. Dr. C. R. Agnew, of New York, at the last session of the Americal Ophthalmological Society, gave it as his opinion, that their frequency was fully two or three per cent of operations. At this same session Dr. David Webster, of New York, reported eleven such cases that had come under his observation. Dr. E. Williams, of Cincinnatti, one case; and Dr. Matthewson, of Brooklyn, one case. In all these cases both eyes were lost.

From what has been said, it is quite evident that whatever view we may take of the etiology of sympathetic ophthalmia, we still have no definite data upon which to base an absolute opinion in any given case, as to the best methods of procedure to adopt. It seems to me the most rational, to regard the inflammation of the second eye, as the direct result of continuous inflammation from one uveal tract to the other, through the chiasma; for if it be due to reflex neurosis of the ciliary nerves, I cannot well see why in every case of injury, etc., of one ciliary region, there should not be produced a corresponding lesion in the other eye, which certainly is not the case; yet we know well (as in many cases of erysipelas), that inflam-

mations do spread contagiously from one region to another, although it does not necessarily occur. The question of treatment is still a vexed one and has to be settled.

Enucleation of the first eye has, till recently, been the operative measure resorted to. Within the past three or four years, a new procedure has been receiving much attention; this is based on the idea of the reflex action of the ciliary nerves, and consists in severing subconjunctivally, the optic and ciliary nerves at the point where they enter the globe, and is known under the name of optico-ciliary neurotomy.

Hirschberg, in the *Centralblatt fur Augenheilkunde*, June, 1878, gives a full history of the operation. Warlamont has a paper on "de l'enervation du globe de l' œil," in the *Annale d'Oculistes*, Dec. 1879, and D. H. Scholers, gives an account of thirty-five cases in the *Jahres Bericht Seiner Klinik*, 1877-8. The operation was originally intended for cases where vision was already lost, and where the condition of the eye threatened danger to the good one. The procedure is not particularly dangerous if performed with ordinary skill, and does not preclude a subsequent enucleation, should the latter become advisable.

Schweigger speaks very strongly in favor of the new operation, and says: "The indications for enucleation will hereafter be confined to intra-ocular tumors, and eventually to eyes in which foreign bodies keep up a chronic inflammation."

My esteemed teacher and friend, Dr. Henry W. Williams, of Boston, read a paper before the American Ophthalmological Society in June, 1880, on "Enervation of the Eye," (optico-ciliary neurotomy), based on ten or twelve operations which he had made, in one case only of which subsequent enucleation had to be performed.

Dr. J. J. Chisholm, of Baltimore, reports in the transactions of the Medical and Surgical Faculty of Maryland, 1880, ten operations of optico-ciliary neurotomy, in two of which he subsequently enucleated the eye; one, three weeks afterwards, and one, after a lapse of five months.

Many other observers are giving earnest attention to this mode of procedure, and it is much to be desired that the ultimate results of these investigations may very materially restrict the *traffic in artificial eyes.*

Since writing the above, there has appeared in the *Boston Medical and Surgical Journal* for March 10th and 17th, 1881, a clinical lecture on foreign bodies, etc., in the eye, by Mr. McDonald McHardy, professor of ophthalmology, and ophthalmic surgeon to King's College Hospital, London, from which I extract his views regarding sympathetic ophthalmia. He says: "You may take it as an established truism, that every eye whilst lodging a foreign body is threatened with destruction by its tenant; neither the position nor the size of the foreign body negative this." And again, "moreover, you must recollect that the danger is not confined to the injured eye alone, the risk of blindness being shared by its fellow. Sympathetic ophthalmia, an affection indefinitely deferred, insidiously developed, obstinately progressive, and deplorably blinding, often attacks the fellow of an eye rendered useless by a penetrating foreign body, which may be located in any part of the globe." In reference to treatment, he says: "Every *blind* eye, reasonably suspected to contain a foreign body, should be promptly enucleated, whether it be or be not pain ful." And again: "Having recommended you to enucleate in such cases, you will be right if you infer that I hold the operation of optico-ciliary neurotomy in no favor; indeed, I believe that, unless speedily abandoned, its introduction as an alternative for enucleation must result in the destruction by sympathetic ophthalmia, of many eyes which would never have been exposed to the danger thereof, but for a misplaced confidence reposed in an operation which can offer no advantages compensating to a diminution of the almost absolute safety, securable by *timely* enucleation."

The subject to which I next invite your attention, is closely allied to the preceding, frequently accompanies it, and I am inclined to the opinion, that like it, its etiology depends largely

upon changes occurring in the uveal tract. I allude to *Glaucoma.*

Prior to 1856, comparatively little was known concerning the etiology and pathology of that condition of the eye known as glaucoma, and nothing whatever concerning any means of cure. It was classed among the incurable affections of the eye. Von Graefe, while attending the eye clinics in Paris, observed that tension of the globus oculi was lessened by operations of iridectomy and paracentesis of the cornea; these observations led to one of the most brilliant discoveries in ophthalmic surgery, and one which will ever cause the name of Von Graefe to be held in grateful remembrance, viz: that iridectomy is a positive cure for a large proportion of glaucomatous affections.

But although iridectomy was found to be a cure for the disease, and was speedily recognized as such throughout the civilized world, and thousands were saved thereby from the doom of total blindness, and were restored to normal vision, yet the modus operandi by which such results were effected was not understood, nor the essential nature of the disease itself. For twenty years after, although this discovery of Von Graefe had opened up a new field for investigation, very little was added to the sum total of the knowledge concerning either the etiology or the pathology of this condition. During this period, three theories obtained concerning the increased tension: Graefe's theory, known also as the inflammatory, according to which the increased pressure was caused by a hyper-secretion of fluid, resulting from irido-choroiditis. The cases of nerve-excavation were primarily classed by Graefe as "amaurosis with excavation." Graefe considered the acute inflammatory as the typical form of the complaint.

A second theory was that of Donders, also known as neuropathic. Donders regarded the simple glaucoma, which was analogous to the "amaurosis with excavation" of Von Graefe, as the type.

A third theory was known as the scleral; the thickening and rigidity of which tissue was regarded by its supporters as being the principal factor in the morbid process.

Within the past four years great advances have been made in the elucidation of the group of symptoms combined under the head of glaucoma, through the researches of Knies, Adolph Weber, L. De Wecker, Brailey, Schnabel, Mauthner, and others. These researches have been based upon careful microscopical examinations of glaucomatous eyes.

Knies was the first to make public any extended results of such examinations, and he formulated his conclusions as follows:

1. "The essential condition of genuine glaucoma is a glueing of the periphery of the iris to the cornea, and an obliteration of Fontana's space. The nerve excavation is to be regarded as somewhat secondary.

2. "The same relations exist also for the so called secondary glaucoma; only for secondary glaucoma, after occlusion of the pupil, is the question not yet settled.

3. "The glaucoma operation (iridectomy), cannot be supplanted by the eserine, or any other treatment.

4. "Sclerotomy is an exception to this, since an excision of a piece of the iris is not essential. It can, when prolapsus of the iris is not to be feared, be substituted for iridectomy.

5. "The affinity of many glaucomatous processes to glaucoma, is shown through pathologico-anatomical conditions. There may possibly be cases where other causes can produce the clinical appearances of glaucoma, but I have not seen them."

Wecker asserts that Fontana's space, and the parts around the optic nerve, are "the only points in the interior of the eye which are devoid of a vitreous membrane, which is badly adapted for filtration." He also claims to have first formulated the modern theories concerning the pathology of glaucoma, as "the expression of an interference of equilibrium between secretion and excretion, with an increase of the contents of the eye and its pressure."

Weber agrees with Knies and Wecker, in the theory that the tension is due to an obstruction to the escape of the eye-fluid through Fontana's space.

The investigations of Dr. Brailey would also confirm this theory.

Schnabel would make deranged nervous action the prime cause of increased tension; the other authorities mentioned acknowledge that this nervous action may have its influence. but regard it as secondary, or as a complication.

The observations of Brailey on the nerve-excavation are exceedingly important, as explanatory of what doubtless every ophthalmic surgeon has experienced in practice, viz.: that many cases of greater or less tension of the eyeball, with other glaucomatous signs, fail to show with the ophthalmoscope any signs of cupping of the disc. It has always been taught heretofore, that cupping of the disc was the one sure indication for operative interference; and Brailey's statements, based upon the examination of over fifty cases, that the cupping of the disc "follows, at some distance in point of time, the increased tension, even where this has been considerable," takes from us one of the most important means on which we have been accustomed to base our decisions.

De Wecker, in his work on "Ocular Therapeutics," speaks of glaucoma as consisting of "a group of the most important diseases that can affect the eye, and in the treatment of which perhaps the most brilliant triumph of ocular therapeutics has been gained."

He regards this group not as diseases in the true sense of the word, but as symptoms; as jaundice is a symptom of functional derangement of the liver. He used to regard glaucoma (as did Von Graefe) as a serous form of choroiditis, varying in intensity, but never causing any appreciable anatomical changes in the choroid.

Wecker makes three divisions of glaucoma: 1st, acute (or an attack); 2d, chronic irritable glaucoma; and 3d, chronic simple glaucoma. To these he adds, 4th, absolute glaucoma; 5th, consecutive glaucoma; and 6th, complicated glaucoma.

"In the first, or acute form, *depression of the papilla never exists at the beginning;* vision may have been destroyed forever, and yet no depression of the nerve be visible. It is a very common thing for one not having much experience with the disease to fail to recognize its gravity. If we glance back over either the premonitory symptoms, or the actual attack of glaucoma, we shall find ample evidence of irritation in the nerves and vessels, but none of *genuine inflammation.*"

In the second, or chronic irritable glaucoma, after describing fully the symptoms and changes that have taken place, he says: "I must once more insist upon the fact that during the whole course of this, the commonest form of glaucoma, there is not one sign that could justly be attributed to inflammation."

"Third, chronic simple glaucoma, is universally regarded as the typical form of the disease."

While speaking of this form, Wecker again says: "The characteristic signs of glaucoma are, increased ocular tension, excavation of the papilla, and the regularity with which pressure acts on the retinal circulation, first limiting, and eventually abolishing the field of vision. Absolutely nothing abnormal can be observed in the enveloping membranes of the eye, or in the media, in simple glaucoma."

Referring to the etiology of glaucoma, Wecker says that in 1877 he published the following sentence: "According to Donders, the excess of tension in glaucoma is the result of hyper-secretion. From my point of view, it results in the majority of cases from some check to excretion." He also says that "our knowledge of the etiology of glaucoma has gained considerably since we have quitted the obscure domain of neurosis of secretion, and have reduced all cases to purely mechanical methods." He ascribes about one per cent of the diseases of the eye to glaucoma.

Referring to the treatment of glaucoma, he states that "although he will probably during the whole course of his professional life perform excision of the iris, as being the most certain operation against glaucoma, he is yet convinced that eventually some more simple and logical procedure will be

adopted." He does not believe "that the removal of a piece of iris is essential, and that it produces unnecessary mutilation of the eye." Further on he says: "It must be allowed that the difficulty is great in trying a new method, when we already have at our disposal a puissant and established remedy, and this is all the more so, when it is a question of preserving the remnant of a patient's sight. Therefore, till some bold operator shall have consecrated himself to the task of proving that an effect can be obtained from sclerotomy, equal to that of iridectomy, I should advise you to adhere to the latter." He would only make two exceptions to this advice—first in hemorrhagic glaucoma, and second, in glaucoma absolutum. In the first case, on account of the danger of hemorrhage, by reason of the large incision necessary; and in the second, because the operation is only required for the purpose of relieving pain, vision being already hopelessly lost.

Two different methods have been and are being experimented upon, as substitutes for iridectomy—the drainage method, and sclerotomy. The former has of late been almost completely dropped. In making the operation of sclerotomy, instillations of eserine should precede and follow the same. In speaking of operative measures, Wecker says: "No one should ever undertake, in these days, an operation for glaucoma without using eserine. Its action is purely mechanical, by contracting the pupil, pulling the iris from the iritic angle, and by constricting the whole vascular system, diminishing secretion.

In a paper read before the British Medical Association, in the latter part of 1879, by De Wecker (which may be found in the July number of *Braithwaite*, 1880), he speaks of the reproaches made against him by Mauthner (whose investigations on the employment of sclerotomy for the cure of glaucoma are among the most recent and extensive), that he, Wecker, has not upheld with more vigor an operation of which he was the originator (meaning sclerotomy). Reference is made to his work on Ocular Therapeutics, in which he advises young practitioners to confine themselves to iridectomy

until the results of the new operation should become more thoroughly determined. While giving Mauthner great credit for his efforts in this direction, he thought it not wise to substitute sclerotomy for iridectomy in all cases of glaucoma, but to select for the new operation such cases as iridectomy had failed more or less completely in yielding satisfactory results. He selected for sclerotomy, cases of absolute glaucoma, and the hemorrhagic forms of glaucoma. Since the publication of his "Ocular Therapeutics," he had experimented with sclerotomy on a large scale, and in his recent work on "Ocular Surgery," he recommends the operation in the following conditions: 1st, "In the incipient stage of glaucoma, when between the attacks the vision is normal;" 2d, "In cases of simple glacoma, in which both central and peripheral vision are nearly normal;" 3d, "When in simple glaucoma the margin of the visual field, even at one side, only touches slightly, or comes very near to the point of fixation, as in such cases an iridectomy is very frequently followed by a further diminution in the field of vision, a danger not to be feared in sclerotomy." From the large number of cases treated by him up to the present time by this method, he thinks it is possible to give with precision the indications for the operation.

1st. "In every form of chronic simple glaucoma in which the results of iridectomy have been much less brilliant than in the irritative form; also, in those cases of irritative glaucoma where well marked myosis can be produced by the use of eserine." He would reserve for iridectomy, cases of acute glaucoma, and those irritative forms where the tension is so great that eserine produces imperfect myosis; these are the cases in which the exact performance of sclerotomy would be very difficult, and where the most imperfect iridectomy might prove useful. He quotes Schweigger as enunciating the doctrine, "that the action of eserine upon a glaucomatous eye should decide the operative measures to be pursued; in other words, where the eserine produces active contraction of the pupil, sclerotomy should be performed, and on the other hand, when the effect of the eserine is incomplete and where its

action does not modify the form of the glaucoma, iridectomy is the most desirable." Wecker makes it a *sine qua non* that the sclerotomy must be accurately performed and says: "A complete curative effect should not be expected from sclerotomy, unless it is performed strictly '*leye artis*,' and in order that this may be, it is necessary that the operator should have the proceeding at his fingers ends." He has performed since the commencement of 1879, forty-eight sclerotomies, the results of which have convinced him "that in the various forms of chronic simple glaucoma, sclerotomy is not only as efficient as iridectomy but that it is far superior to the latter, being free from the disagreeable effects of the excision of a portion of iris."

Mr. Higgins, Assistant Surgeon at Guy's Hospital, London, says that the treatment of glaucoma is almost entirely operative. In simple progressive glaucoma, and in the chronic and acute forms, as soon as the globe has become hard, or an inflammatory attack has occurred, iridectomy should be performed at once. Sclerotomy and puncture of the ciliary body have each their advocates. He has had no satisfactory experience with sclerotomy, and knows nothing of the latter.

Mr. H. R. Swanzy, Professor of Ophthalmic and Aural Surgery, Royal College of Surgeons, Ireland, makes a report on sclerotomy in glaucoma, and prefaces the same by some statements on the disease, which seem to me very appropriate to quote here:

"Until iridectomy was discovered by Albrecht Von Graefe, twenty-two years ago, as a cure for glaucoma, this disease was absolutely incurable; and if Von Graefe had not contributed in any other way to the progress of ophthalmology, this discovery alone would have immortalized his name. By means of it *hundreds*, nay *thousands*, are annually relieved of a disease which othewise leads with certainty to complete blindness, attended in many cases with violent and protracted pain. After a properly performed iridectomy, the tension of the globe is permanently reduced to the normal standard, in a

large number of cases, the pain relieved and the sight preserved."

After reviewing the generally accepted opinions as to the causes of glaucoma, the theory of retention advocated long ago by De Wecker, and maintained almost alone by him, until the more recent researches of Leber, Weber, Knies, and others, have shown that effete intra-ocular fluids principally escape at the angle of the anterior chamber, through the ligamentum pectinatum into the canal of Schlemm, and that in glaucoma these channels become obstructed and closed by the adhesion of the periphery of the iris to the periphery of the cornea; he goes on to speak of the operation of sclerotomy, as recommended by De Wecker, as a procedure which would secure the corneo-sclerotic cicatrix without the making of an iridectomy. He speaks of the happy circumstance of the isolation of the active principle of the calabar bean, just at a time when the operation would necessarily have proven a failure, on account of the danger of the tendency of the iris to prolapse and become engaged in the cicatrix. The eserine, by producing a strong contraction of the sphincter of the iris, draws away the fibres from the sclero-corneal section, so that no prolapse can take place. Swanzy gives the results of five sclerotomies, which he has performed in cases of chronic simple glaucoma, and so far as time allows him to judge, the results are satisfactory. He speaks of the difficulties attending the making of accurate operations, upon which so much of the success depends, and says that this is one great reason why so many failures have occurred, and why this method has failed to find favor in the opinion of many surgeons. He concludes his paper by giving his own opinion entirely in favor of sclerotomy over iridectomy, in chronic simple glaucoma.

In the *Archives of Ophthalmology* for September, 1880, Dr. H. Knapp presents the translation of a paper by Dr. W. Roeder, of Strasburg, Germany, on the common causes of glaucoma, myopia, astigmatism, and the majority of cataracts, which advances very different views from those taken by other investigators. He agrees with Von Graefe, that glaucoma of

all forms has one common cause, but which he thinks lies "in the traction of the tough, elastic fibres of the zonula at the ciliary body, producing dilatation of the blood vessels, irritation of nerves and increased secretion into the vitreous, *i.e.*, the well known picture of glaucoma in its different stages. The red and white blood corpuscles exuded into the vitreous, will at first pass through the zonula, but gradually adhere to it in greater quantity, until at last they are retained in the vitreous chamber; the zonula, like a clogged strainer, having become an impervious partition wall. The same process occurs in Fontana's space, which may be more or less obstructed by formed elements from the blood; and that it will depend upon the exit, absorption, or organization of these deposits, whether Fontana's spaces and the sinuses of the anterior chamber are partially or totally obliterated, in the manner described by H. Muller, Althoff, Manfredi, Knies, and Adolph Weber." He does not believe "that the simple excision of a piece of iris can have the curative effect which is so often seen after iridectomy for glaucoma, but that smaller or larger portions of the zonula and its fibres are torn off, by which means a communication between the posterior and anterior chambers is established, and at the same time the tightness of the zonula is relaxed." From these views he is led to the belief that the relief obtained from iridectomy, and sclerotomy, is due to the relaxation of the zonula, and consequent equalization of the pressure in the vitreous and aqueous chambers.

No comment is made by the translator.

In the same number of the *Archives*, Dr. H. Knapp also has the translation of a report on eight sclerotomies, made according to the Wecker–Mauthner method, by J. Hock, M. D., lecturer at the University at Vienna, with the following results:

In Case 1—Two eyes, with absolute glaucoma; the pain was removed, the media cleared, the ocular tension diminished, and the patient's eyes saved from glaucomatous degeneration.

In Case 2—Chronic inflammatory glaucoma, the tension was rendered normal, the media clear, and vision increased from 1-1000 to 2.3-200 in R. E., and in L. E. from 2-100 to 10-200. Seven months later there had been no change for the worse.

In Case 3—The pain was removed and vision improved, but a relapse followed in about eight months, destroying sight.

In Case 4—An iridectomy could not have done better than did sclerotomy, in reducing the tension.

Cases 5 *and* 6—Were simple glaucomas for which iridectomy has the least benefit, and in which Graefe concedes, that only a trifle more than fifty per cent of the cases are cured.

During the past year Dr. L. C. Lane, one of our most prominent surgeons, has devised an entirely new method of procedure. This consists in the ligation of the common carotid artery, an operation that is justly classed among the "capital operations," both by reason of its close proximity to the heart and its interference with the brain circulation. Dr. Lane has made but one operation, and that in a case of incipient glaucoma; yet he does not hesitate to state "that the results justify the operation, and warrant its adoption in similar cases." Dr. Lane says, "that notwithstanding the immense advances in ophthalmic surgery made during the last half century, nothing satisfactory has been done for the cure of this disease." And he states that he was induced to attempt this proceeding under "the belief that no worse results could follow than have followed from the usual modes of treatment, viz: final blindness."

There is no mention, so far as I can find, in ophthalmic literature, of this operation; and although the publication of the one case was made in the *Pacific Medical and Surgical Journal* for May, 1880, no notice has thus far been given to it by our ophthalmic surgeons, so far as I can ascertain.

AMBLYOPIA.

There is one other disease of the deeper seated tissues of the eye, that has been the subject of much controversy, and which has only very recently been placed upon any definite foundation. I allude to the so called "alcoholic amblyopia." It is pretty generally conceded at the present time, that this disease is produced by the poisonous influences of tobacco, and should be carefully distinguished from amaurosis, or progressive atrophy of the optic nerve; as in the latter class of cases, so far as known, no hope can be given to the patient; while in the former class it is rare that total blindness occurs, and in the majority of cases, with the proper co-operation on the part of the patient, partial, or even total restoration of vision, may be looked for. It has been thought that the excessive use of alcohol also produced this condition, but this view does not seem to be confirmed by observation.

Mr. Edward Nettleship, Ophthalmic Surgeon to St. Thomas' Hospital, presents (in a paper which appears in *Braithwaite* for July, 1880), very clearly and forcibly, diagnostic differences between tobacco amblyopia and amaurosis, which makes it comparatively easy in most cases to distinguish one from the other, even in the early stages. 1st. "In tobacco amblyopia, however much the acuteness of central vision may be lowered, the patient shows no difficulty in walking about, and has not that peculiar stare that is so significant of progressive atrophy of the nerve, in which latter class of cases peripheral vision first becomes defective." 2d. "The sight in tobacco amblyopia is almost always best in a rather dull light, the subject making about the same complaint as in early uncomplicated nuclear cataract." 3d. "In tobacco amblyopia, the greatest functional defect is always found to occupy an oblong patch extending from the 'yellow spot' outwards, to or beyond the optic disc. This patch, known as central scotoma, is only *defective* (amblyopic), *never blind* (amaurotic), and is a relative, not an absolute scotoma."

In testing the visual power of these cases, the manner in which the patient moves the print about in his effort to find

some position in which it is better seen, is quite noticeable, especially in the early stages, and before the patient has any definite idea that there is disease present. The existence and general course of central amblyopia has been known and pretty well understood since the time of Graefe, but its intimate connection with the excessive use of tobacco has only recently been thoroughly believed. The efforts of Forster and Hirschberg have done much to bring about this belief, and have assisted very materially the elimination of these cases (which are in great part more or less amenable to treatment), from those cases of absolute amaurosis (progressive atrophy of the nerves), which, up to this time, have been beyond the best efforts of human skill.

One other item in aid of diagnosis is of great importance, viz: the scotoma is symmetrical in the two eyes; while in progressive atrophy, one eye is frequently attacked first. The question as to how far the use of alcohol influences this class of cases, Mr. Nettleship does not enter much upon; it has in a general way been an accepted notion, that alcohol has had as potent an influence in this direction as tobacco; but Mr. Nettleship says, "that the more carefully this subject is examined, the less reason do we find for holding that alcohol can of itself directly produce ocular symptoms like those caused by chronic tobacco poisoning; it is no doubt rare to see the disease in smokers who are water drinkers, and very common to see it in those who have damaged their stomachs and nervous system by drink; but the more we study facts like these in cases, the stronger does the evidence seem that without tobacco, this common and characteristic form of amblyopia would be almost unknown." It is almost useless to say that abstinence from the use of tobacco must be insisted upon in the treatment of all cases.

In *Braithwaite* for January, 1881, George M. Berry, Esq., M. B., London, speaks of central amblyopia as that condition in which direct vision is impaired, but which very rarely ends in complete blindness, and may undergo partial or complete

recovery. He considers it a toxic affection, which is most commonly caused by excessive use of tobacco.

The injurious effects of this plant were suspected long before the discovery of the ophthalmoscope enabled the deeper portions of the eye to be examined. He speaks also of the great importance of properly distinguishing central amblyopia from amaurosis; while in the latter, the diminution of vision begins from the periphery, and encroaches more and more towards the center, till sight is extinguished, and is hopeless from the beginning; in the former, the prognosis is always good so far as complete loss of sight is concerned, except in some very rare cases, where progressive atrophy first manifests itself as a central scotoma.

The entire giving up of tobacco is an essential part of the treatment.

CATARACT.

I shall devote very little time to the consideration of cataract. You are all more or less familiar with the subject, and the measures in general use for their cure. New methods, and modifications of old methods, are constantly being brought to the attention of the profession, and their advantages over previous proceedures duly set forth by their projectors.

While doubtless the methods of Liebreich and Wecker have the very great advantage, when successful, of leaving in the former, a normal pupil, with no coloboma of the iris; and in the latter, only a small coloboma, with the base towards the pupil; still the danger of the occlusion of the pupil and the catching of the fibres of the iris in the corneal wound, are so great, that the old linear extraction, with Graefe's modification, remains the favorite operation with most ophthalmic surgeons. During the past year or two, the suction operation for soft and semi-fluid cataracts, has been somewhat revived in England. Mr. Brudenell Carter publishes the results of twenty-seven cases, occurring in the ophthalmic wards of St. George's Hospital, where the operation was wholly or in part

made by the suction method. With one exception the cases did well.

Dr. J. R. Wolff, of Anderson's College, Glasgow, reports a modification of the cataract operation, by which he claims to leave eventually a nearly round pupil. He makes an iridectomy several weeks before attempting the removal of the lens. The section of the iridectomy he makes subconjunctivally, and takes special care to remove only the pupillary margin of the iris, rounding off the corners with the scissors as much as possible. The advantages claimed for the operation, aside from the shape and size of the pupil remaining, are, avoidance of dangers arising from the filling of the anterior chamber with blood after the excision of the iris, and the leaving of soft cortical substance in the anterior chamber and pupillary space.

Prof. Wharton Jones, of London, in *Braithwaite* for January, 1881, proposes an operation which he calls "discision from behind." Without dislocating the lens from its position, he introduces a needle in a manner similar to that for the operation of couching, and lacerates the posterior capsule and hyaloid. He claims by repeated needlings from behind, to obtain complete absorption of the lenticular substance; that the vitreous fluids are as competent to dissolve the lens substance as is the aqueous, and that by operating first through the posterior capsule, all dangers of secondary capsular cataract are averted. He does not confine his operations to cases where the lens is soft, but attacks hard, senile cataracts as well. He admits that the operation necessarily extends over a long period of time, and mentions in his paper the case of a woman fifty-six years old, in which he had just made his third needling, the first having been performed about a year previously.

If future experience should demonstrate this method of operating to be successful, it would in many cases supersede all other devices; as there is no wounding of the corneal tissue, no iridectomy, no danger of iritis, loss of vitreous, or any of the unfortunate accidents that are to be dreaded and guarded against in all of the procedures at present in vogue.

An additional advantage would obtain in there being no necessity for awaiting the completion of the cataractous process. When vision had become so impaired as to render objects only dimly visible, the preliminary laceration of the posterior capsule could be made, and the progressive process thereby reversed.

COLOR BLINDNESS.

Color blindness, or Daltonism has been known and recognized for many years, but it was looked upon in the light of a curiosity more than anything else. Within the past few years, however, scientists have been giving this defect great attention, and have called the notice of communities and governments to the necessity of taking measures to guard against accidents both by sea and by land, by reason of mistakes committed in the reading of signals, on the part of those whose duty it is to properly interpret the same. The *New York Nation* of Jan. 15th, 1880, says: "The subject offers the most striking recent instance of a strictly scientific inquiry, that has suddenly been transformed into a serious question of every day practice."

European governments and railroad corporations have very generally enacted laws and regulations that control the appointing of officials, both on sea and land, in whom a good color sense is of importance. In the United States, through the efforts principally of Dr. B. Joy Jeffries, of Boston, our government has recognized the importance of the subject, as shown by the action taken in the army, navy, and marine hospital service. Our railroad service has thus far been very much neglected, and up to this time I believe, but one State has enacted laws appertaining to this subject, viz.: Connecticut. The act in question is of such importance that I have incorporated the same in this report (Appendix No. 1), together with the rules for examining which were determined by the "State Board of Health," to which was delegated the power of enforcing the provisions of the said act. I have elsewhere in this paper given the results of the first examina-

tions made under the new law. I have also incorporated herein (Appendix No. 2), the Report of the Committee on Naval Affairs to Congress, together with the resolutions, reported in the House of Representatives, May 24th, 1880, by Mr. B. W. Harris, from the Committee on Naval Affairs, relating to "Color Blindness" and visual acuteness in persons employed in the navy and merchant marine.

Also, Gen. Orders No. 82, issued from the Adjutant General's Office, Washington, D. C., August 13th, 1879 (Appendix No. 3). And circulars issued from the Treasury Department, Washington, D. C., February 17th, 1880, and March 9th, 1880 (Appendix No. 3).

Since writing the above I have ascertained that the Massachusetts Legislature has, during the past session, recognized the necessity of making some enactment concerning color blindness, in the interest of the travelling public. I have added to the documents appended to this report (Appendix No. 4), an extract from the act introduced into the Legislature, which I have taken from the *Boston Medical and Surgical Journal* for March 10th, 1881. The act in question, considering what has been done abroad, and by the different departments of our own government, is exceedingly incompetent; it makes no provisions for the carrying out of its details, and does not define what shall be considered a "competent person" for making the examinations. Compared with the Connecticut law, it is simply a recognition of the rights of the community, nothing more.

These documents, together with extracts from other reports, etc., on the subject, which I shall present to you, will, I trust, prove sufficient to cause this body to institute measures to have the Legislature of California take some suitable action in the premises. Our position, with the number of miles of railroad centering here, mostly under the control of one corporation, and the extensive marine service, renders it very essential that the State authorities should speedily see to it that our citizens are properly protected in this regard.

For full details concerning the defect of color blindness, its history, and the different measures adopted for its detection, I would refer you to the work of Dr. B. Joy Jeffries, of Boston, on "Color Blindness, its Dangers and Detection," published in 1880. Dr. Jeffries has been the pioneer in this country on this subject, and to his efforts and labors in various directions (especially in the schools of Boston), and the interest which he has awakened amongst our scientific men, and the authorities at Washington and elsewhere, are due in a very great degree whatever has been accomplished up to the present time in the way of legal enactments and regulations on the part of corporations.

Dr. Jeffries, March 20th, 1880, made a report based upon the examination of school children of Boston, on color blindness, which was ordered published by the school committee January 22d, 1880, and is known as School Document No. 13. These examinations were made by the Holmgren method, and embody the following:

MALE STUDENTS OF THE

Normal Art School,	All the High Schools,
Latin School,	All the Grammar Schools,
English High School,	Schools for Deaf Mutes.

14,469 in number, of which 608, or 4.202 per cent, were color blind.

FEMALE STUDENTS.

Normal Art School,	All the High Schools,
Normal School,	All the Grammar Schools,
Latin School for Girls,	Schools for Deaf Mutes.
Girls' High Schools,	

13,458 in number, of which 9, or .066 per cent, were color blind.

Dr. Jeffries finds these results to correspond so nearly with extensive examinations made abroad and elsewhere, as to be the experience of a general law. The conclusion is, that about one male in twenty-five is more or less color blind, and that the defect is very rare in females. He finds that while in the

primary schools, some effort is made to teach the names of colors, the matter of color blindness, in boys, is entirely overlooked. That in the higher schools, few teachers have any knowledge of color blindness, except as an occasional curiosity. He speaks of the uselessness of attempting to teach a color blind boy the names of colors, with the idea of his subsequently applying such knowledge. He thinks that the future education of the color sense, and the teaching of color names, will devolve principally on primary teachers, and that consequently these teachers should have some knowledge of the subject. He calls attention to the fact that his long labors in the schools "have proven the previously unknown and unbelieved percentage of color blindness, and the wonderful exemption from this defect on the part of females." He thinks that making the boys aware of the defect, and through them conveying the knowledge to their parents, would be of great service in determining the channels in which their future lives should run. For instance, an artist, or a dry goods merchant, or any person whose occupation demanded a knowledge of colors, would not think to bring up a color blind son to follow his own vocation. He justly considers that this work would be of future value to the general community, through the warnings he has sent to railroad employes, engineers, etc., by their color blind children. He speaks of the extraordinary lack of knowledge on the part of boys, of color names, and of the fact that while this lack is not manifested in school life, it is very quickly shown in every day life and occupations. It is a natural supposition, that boys as well as girls should learn colors and their names, in a general way, but Dr. Jeffries has thoroughly convinced himself "that very few boys of the grammar or high schools are familiar with the names of even the primary colors, and that they can still less correctly apply the color names they do remember." Dr. Jeffries says, "that although he was in a great measure prepared for this ignorance on the part of boys, he nevertheless was astonished to find it so frequent and great." And when he speaks of "bright lads of fourteen years of age, *not* color blind, who do not know

the word *green*, or its application to objects," and says that this "does not convey an extreme idea of the ignorance of school boys as to color names and their proper applications," we may well be surprised. Dr. Jeffries speaks of receiving letters from various parts of the country, from persons *not* color blind, urging him to use his influence in the direction of having the teaching of color names and their application introduced into the public schools; giving as a reason for such request, that their own lack of color names had been a serious drawback to them in their daily vocations.

He closes his report by stating that systematic teaching of color names and their application has already begun in Europe, and especially in Germany, and strongly urges that a similar course be pursued here. He says: "It has been supposed, and even claimed, that the exemption on the part of females from color blindness was due to their familiarity with colored objects and materials (this will not, of course, hold in reference to the individual, as the color sense cannot be changed by practice with colors.) Whether generations of color education has caused this sexual difference is a point to be remembered, as, if sustained, it proves we may commence to eliminate color blindness from future generations of boys, by teaching and practicing their ancestors now under the charge of the school board." "It must be remembered that our community and our school children are not different from others; wherever in the civilized world examinations similar to my own have been carried out by competent observers, the same facts as to color blindness and ignorance of color names and their use, and an undeveloped color sense has been found appertaining to males."

I have made very full extracts from Dr. Jeffries' report, on account of the importance of this defect, which comes directly home to the entire community, and because it is the only full report upon the subject that has been made in the United States.

The defective color sense among the school children is not brought to the notice of the general profession, or the special-

ist (in fact, in ordinary every day practice, it is extremely rare that a case of color blindness comes to our knowledge at all), but its importance has been so ably pointed out by workers in this field, that I would earnestly suggest that this Society take measures to call the attention of the school authorities in the State thereto, and to urge the adoption of some means whereby our teachers may be taught to recognize color blindness, and at the same time arrange for the teaching in an easy and simple manner the color sense, both the names and applications thereof, to objects and materials.

Dr. Wm. S. Dennett, of Boston, reports the examination of the eyes of the pupils of the schools of Hyde Park, near Boston, during the past year, with the following results: out of 1,133 scholars examined, 854 or 76 per cent had eyes which were considered perfect; of the 279 remaining, 134 or 12 per cent were prematurely far-sighted; 95 or 8 per cent were near-sighted; 46 or 4 per cent had a variety of diseases; 15 or about 1½ per cent were found color blind; these 15 were found out of a total of 557 boys; 576 girls were examined, not developing a single case.

Dr. Chamberlain, Secretary of the Connecticut State Board of Health, in the *Boston Medical and Surgical Journal* for February 3d, 1881, gives full details of the subsequent working of the law (see Appendix No. 1), which he admits, "was rather vigorous, decidedly in advance of general knowledge upon the subject, and somewhat in advance of public sentiment." The effort to enforce the said law was met with intense opposition, not only on the part of the employes and officials of the railroads, but even the public press and the general community denounced it as a hardship; while the different political parties made use of the same in their campaign issues, with promises of repeal, etc. The first examinations made under the law, however, demonstrated the importance and the necessity of such an act. Among the first examined, a number of engineers (related to the officials of one of the most influential roads), were found to have defective color

sense. This unexpected result brought forth a petition containing over six thousand signatures, among which were the names of nearly, if not all, the presidents and principal officers of the railroads, and leading politicians of the State. This was presented to the Board of Health, accompanied with the request that only practical tests, such as the lanterns, signals, flags, etc., in daily use on the roads, should be made use of in examinations, instead of the Berlin wools or other scientific methods.

In deference to this appeal, those who had failed under the regular tests, were submitted to a trial by the flags and lanterns at a distance of eighty rods, with the result that out of twenty-four found color blind by the worsteds, twenty-one were equally unfortunate with the road signals; the remaining three were not at all certain in their answers. These first examinations were made by Dr. W. H. Carmalt, Professor of Ophthalmology of Yale University, and Dr. W. T. Bacon, of Hartford.

There were 1,950 employes examined; these were divided into two classes:

FIRST CLASS.		Defective Vision.	Defective Col'r Sense
Engineers	291	33	9
Firemen	285	18	8
Conductors	202	17	7
Total First Class	778	68	24
SECOND CLASS.			
Brakemen	635	68	32
Station Agents	212	35	6
Flagmen, etc	325	25	6
Total Second Class	1,172	128	44

Professor Carmalt found among those in the first class, who were deficient in color sense, but one who was over thirty-two

years of age, the average of those thus affected being just 31 years. The average of firemen with defective color sense was 27 years; of conductors, 47 years; of brakemen, 27 years; switchmen, 40 years; and station agents, 40 years. In these examinations some curious facts were elicited; a brakeman serving on a night train, was so near-sighted that he could see but a few inches from his face; men in responsible positions, serving on fast trains, were found with defective vision and progressive disease, as double cataract.

Dr. Chamberlain says in conclusion: "The experience with flags and lanterns proved entirely untrustworthy and unsatisfactory; it gives the color blind fully an even chance to guess right, and renders collusion with some interested friend more difficult to prevent. Both of the experts condemn these tests as of no value whatever, and this appears to be the universal testimony of all who have used them in any way. No tests would be satisfactory to those rejected by them. There was as much fault found with the so called practical tests, by those who failed under them, as with Holmgren's test by those who failed to pass it. The results of the examination showed the necessity of some such law as that passed by the Legislature, and that the public are not sufficiently protected by the methods employed by the railroad officials themselves."

Passed Assistant Surgeon C. H. H. Hall, U. S. Navy, has kindly furnished me with the results of the examinations of 274 men at the Naval Rendezvous in this city, during 1880. Number of color blind 3, percentage about 1.09. No. 1, was Irish, age 38, incompletely color blind, chiefly for the red. Nos. 2 and 3, ages respectively 23 and 29, were completely color blind, making no distinction between the red, green, brown, and gray; and could not distinguish purple from blue.

The following note from a well-known professor of physics, in one of our New England Universities, appeared in the *Boston Daily Advertiser* of March 8th, 1881, and was published in the *Boston Medical and Surgical Journal*, from which I take it:

"As bearing on an important subject now being urged on the attention of the public, allow me to state a personal experience. I am color blind to green, a defect of vision which in my case is slight, and might easily, with ordinary prudence, have been kept a profound secret. I have, indeed, more than once baffled the off-hand investigation of scientific friends, though Dr. Jeffries, by means of Holmgren's worsted test, readily discovered both the nature and the degree of the imperfection. The following incident will show how utterly this slight degree of color blindness unfits me for judging as to colored signals: I stood the other night waiting for a horse car; one with a green light passed, going, however, in the wrong direction; I followed it with my eyes, the impression of the greenness of its lights remaining persistent. Approaching from a distance I now saw a car coming with what appeared to be red lights; the green lights and the red passed each other about fifty rods from where I stood, and critically comparing them when side by side, I was convinced that one pair was green, the other red. When the approaching car had shortened the distance to about twenty rods, I suddenly observed that its light was green, as was indeed the fact. Now it seems to me reasonable to insist that either colored signals are useless complications, and should be abandoned, or no one should be permitted to run a railway train who cannot interpret them better than I can.

Yours truly, E. W. B."

MYOPIA, ETC., IN SCHOOLS.

The New York *Medical Record* for February 5th, 1881, contains an editorial resume of myopia in the schools of different nations, deduced from the labors of Professor H. Cohn, Danzig; Dr. Gerau Teulon, Paris; Drs. Loring and Derby, New York; Dr. C. J. Lundy, Detroit, and others.

In the schools of Detroit, Dr. Lundy reports no myopia whatever, in pupils of seven or eight years of age, who had attended school for one or two years. In the highest grades of the high schools, it was only twelve per cent. In the high-

est grades of the Cincinnati schools, the per cent is 16, while in the New York college and in the Brooklyn Polytechnic, it rises to thirty or forty per cent; these last figures are considered largely due to race influences, as it has been found that in the same schools and the same classes, the per cent of myopes among Germans is 24, while that among Americans is 19, and the Irish 14.

In Russia the percentage begins in the preparatory classes at 13.6 per cent, and runs up to 41.3 per cent in the highest.

In Switzerland and Germany, the percentage attains to the largest figures, beginning with little or nothing at seven years of age, and advancing with rapid strides, to 61 per cent in the highest classes in Lucerne, and 63.3 in Breslau. Loring & Derby, in New York, found the range to be from 3.5 per cent to 26.78 per cent. As an offset to this, investigations show that myopia scarcely prevails at all among uncultivated people.

Dr. MacNamara never met a case of shortsightedness among the Bengalese, and states that the disease scarcely exists among the lower classes of India.

Among several hundred colored school children examined in New York by Dr. Callan, 3 per cent only were myopes.

Under the head of short-sight in relation to education, the *Medical News and Abstract* for March, 1881, contains an address recently delivered to the Birmingham Teachers' Association, by Dr. Priestly Smith, in which he gives the results of examinations of 1,636 pupils of the board schools, and 357 students of the colleges, etc. In the former, the ages ranged from 7 to 13, with 5 per cent of myopes, and in the latter, from 18 to 23, with 20 per cent.

He speaks of Ware having called attention to the fact of the greater prevalence of myopia among the educated over the uneducated classes, seventy years ago. He also refers to the well known researches of Dr. Cohn, of Breslau, the results of which were published in 1867. Dr. Cohn's examinations of more than ten thousand school children resulted in the following figures:

Elementary Schools.....	6.7	per cent	myopes.	
Intermediate Schools.....	10.3	"	"	"
High Schools.....	19.7	"	"	"
Colleges	26.2	"	"	"

Dr. Siggel, recently, among 1,600 German soldiers, found that among those coming from the country districts, 2 per cent were near-sighted; laborers from large towns, 4 per cent; artisans, 9 per cent; tradesmen, clerks, etc., 44 per cent; and among those who had been university students, 58 to 65 per cent.

Under the influence of such facts, Dr. Loring, of New York, recently brought up the question as to whether "the human eye is changing its form and becoming near-sighted under the influence of modern education."

The causes of this increasing myopia, which is rapidly reaching, in fact has already reached, such startling proportions, are not as yet entirely settled. The following articles of belief were voted by the Ophthalmological Section of the International Medical Congress, held at Geneva in 1877.

1. "The ordinary causes of myopia are heredity and eye-work, the influence of which may be separate or combined."

2. "Hypermetropia may be transformed into true myopia under the influence of near-work, passing through emmetropia."

3. "The progress of civilization and particularly of school education, tends to increase the extension of myopia."

4. "The predisposition to myopia is often, but not always, hereditary. The influence of race upon this predisposition is still an open question."

5. "In the use of the eyes for near-work, three principal factors concur with predisposed individuals, to produce the anatomical lesions of progressive myopia. These are, in the order of their importance, accommodation, convergence of the visual axes, and oculo-cephalic congestion."

6. "The conditions of age, attitude, light and duration, under which eye-work is performed, as well as the character

of the objects used, and the state of the visual apparatus itself, have a powerful influence in the development of myopia."

7. "The prophylaxis of myopia requires a combination of individual, school, and domestic hygienic measures, in great part attainable by the co-operation of physicians, educational bodies, and the authorities. Among these measures should be included the use of convex glasses by hypermetropes."

I cannot allow this opportunity to pass without calling the attention of the profession of the State, to the necessity of having more care given to the construction of our school houses, with reference to light and general hygienic conditions. Our authorities have never given any special attention to the question of lighting the different rooms, leaving the matter to the architects and builders. I very much doubt if a physician has ever been consulted in the matter of general construction, and am quite positive that no competent ophthalmologist has been appealed to with regard to the light entrances. In olden times, where only a few hours a day were spent in close application with the eyes, the question of lighting was not of so much importance, and in the country districts at the present time, where the pupils have plenty of out of door exercise and fresh air, there is not so much danger; but in our cities, where many hours outside of the school room are devoted to music lessons, and other close occupations, and our children are allowed to be out of bed exposed to the bright glare of gas light till nine, ten or eleven o'clock at night, the question of imperfect lighting of our school rooms assumes a more vital importance.

There is no doubt whatever, that the muscular effort made to accommodate the eyes to long hours of close application in imperfect light, is a most potent factor in the development of near-sightedness.

Thinking men all over the world are giving their attention to this subject, and in our eastern cities steps have already been taken in the matter of construction of the new buildings.

The French Government, however, is in the lead upon this question, as upon many others. "*The American Architect*" published recently the "rules on building school houses," just prepared by a commission for the French Minister of Education. The entire article could be very appropriately brought to your notice, but I can only give space to what is said on the question of lighting.

"The rooms must be rectangular in shape. Lighting from one side only must be adopted every time the following conditions obtain: *First*—Possibility of obtaining sufficient light. *Second*—Proper proportion between the height of the windows and the width of the room. *Third*—Openings three feet six inches by six feet six inches in the wall opposite the windows, closed by shutters, which may be used for airing the room, and for the introduction of sunlight during the absence of the scholars. When the light comes from one side only, that side must be the one at the left of the pupils; when the foregoing conditions cannot be realized, recourse must be had to lighting from both sides, but the strongest light must come from the left. Windows must never be cut in the wall which faces the master's table, and still less in that which fronts the scholars. Lighting from the ceiling is forbidden. Windows must be rectangular. In case the room is lighted from one side only, the window head must be at a height equal to two-thirds the width of the room. In any case, the underside of the window lintel must be on a level with the ceiling. The window sill must be cut with a slope on the inside and outside, and must be at least three feet eight inches from the floor. Whether the rooms are lighted from one side, or from several sides, by a single window, or by many, the dimensions of these openings must always be calculated, so that they will admit light to all the desks. The mullions separating the windows must be as narrow as possible.

"The windows must be divided into two parts; the lower part, the height of which must be equal to three-fifths the whole height, must be a casement window; and the upper part, transome lights opening inward.

"The best color for the walls is the gray color of flax."

MISCELLANEOUS.

PURULENT OPHTHALMIA.

In this affection, the controversy between the adherents of the heroic and mild treatment still continues; all agree, however, that absolute cleanliness and atropia, or some other mydriatic agent, are indispensable.

Mr. Bader, of London, has recently proposed a method of treatment, which, in his hands, is claimed to have produced the best results, both in children and adults. He uses an ointment composed of one grain of the ung. hyd. nitratis, one-fifth of a grain sul. of atropia, and one drachm of vaseline. After the eyes are thoroughly cleansed, this is applied with a camel hair brush over the entire conjunctival surface, and repeated three times daily till the eyes can be freely opened; then once daily till discharge ceases.

FOREIGN BODIES AND ELECTRO-MAGNET.

Mr. McDonald McHardy, F. R. C. S., Professor of Ophthalmology, and Ophthalmic Surgeon to King's College Hospital, London, delivered a clinical lecture January 31st, 1881, illustrated by cases, on "foreign bodies within the eye, and the electro-magnet as an aid to their detection and removal." His lecture may be found in the *Boston Medical and Surgical Journal* for March 10th, 1881.

The *Archives of Ophthalmology* for September, 1880, mentions the exhibition by Dr. E. Gruening, of New York, before the Ophthalmic Section of the American Medical Association, of a "magnet for the removal of particles of steel and iron from the interior of the eye." His present instrument will support a key weighing twenty-eight grammes.

The same number of the *Archives* contains a long article by Dr. Thos. R. Pooley, of New York, "on the detection of the presence and location of steel and iron foreign bodies in the eye, by the indication of a magnetic needle."

The *London Lancet* of November 27th, 1880, speaks of preparations shown by Stilling, of Strasburg, to the International Ophthalmological Congress, held at Milan, in September last, which he believes to demonstrate the existence of a spinal root of the optic nerve, and which brings the retina into direct connection with the medulla. This root passes from the external corpus geniculatum, in a winding course deep between the bundles of the crus cerebri, and can be traced into the pons; and it appears to come down in the direction of the medulla; although its further progress cannot be demonstrated. The existence of this branch is interesting, on account of the light it throws on certain physiological relations between the medulla and the retinæ, and may constitute the hitherto undiscovered link between certain diseases of the spinal cord and of the optic nerve.

LOCOMOTOR ATAXY.

At a late meeting of the Ophthalmological Society of the United Kingdom, Dr. J. Hughlings Jackson read an interesting paper upon the above subject, notice of which can be found in the *Medical News and Abstract* for March, 1881. This article is very apropos to the preceding, as demonstrating the observations of Stilling, with reference to the relation between the spinal cord and the optic nerve. After a pretty full discussion of "Tabes Dorsalis," under which name he includes the various symptoms of "Locomotor Ataxy," "Westphal's Symptoms" and "Argyll–Robertson's Symptoms;" he speaks of the eye complications as follows: "When clinical assistant at Moorfield's about twenty years ago, I was struck with the fact that many of the men who had white atrophy of the optic disc, had also pains in their legs; the pains were lightning pains. Later on, making a distinction as to the kind of

atrophy, I concluded that the pains were a symptomatic link betwixt uncomplicated amaurosis and "locomotor ataxy."

In the *Braithwaite* for July, 1880, Dr. J. R. Wolff, Anderson's College, Glasgow, reports a new method of cornea transplantation, with a case where a leucomatous staphyloma of a cornea was replaced by corneal tissue taken from a recently removed eye, in which the result was so good that the patient could distinguish features and count figures. He has devised special instruments for the operation, but as he makes it a condition of success, that the human cornea from a recently enucleated eye must be used, the cases where this operation can be resorted to must necessarily be limited.

In the *Medical Record* for January 1st, 1881, Dr. Oppenheimer reported a case of lacerated wound of the eyeball, where a deep scleral suture was taken; result good.

P. & W. had a similar case about a year ago, in which a deep suture was taken, which included a portion of the ciliary body; the case was watched with much anxiety, but there were no untoward symptoms, and a good recovery was made, with retention of a fair amount of vision.

SYMPATHETIC NEURO-RETINITIS.

Dr. David Webster read a paper on the above subject before the Medical Society of the State of New York, February 1st, 1881, and which was published in the *Medical Record* for March 5th, 1881. Dr. Webster bases the paper in question on two cases, one of which occurred in the private practice of Dr. C. R. Agnew, and the other at Dr. Agnew's clinic at the Manhattan Eye and Ear Hospital. Dr. W. prefaces his paper by a resume of seven cases, three of which were published by Graefe, in 1866. Dr. Thomas R. Pooley, of New York, reported two cases in 1871; and Dr. A. Arlt reported the other three cases, in a paper presented at the International Ophthalmological Congress for 1876.

MYDRIATICS.

For centuries belladonna has been known to possess the property of causing dilatation of the pupils. This knowledge was utilized by ophthalmologists long before the discovery of the alkaloid atropia. The value of this alkaloid in eye practice cannot be estimated.

Within two or three years past, a new mydriatic has been brought prominently into notice: the duboisia myoporoides.

This is a tree-like shrub of Australia, and belongs to the nat. ord. solanacæ.

The alkaloid duboisine is a yellow viscous mass, and is at present very expensive, and not easy to be obtained.

The chief value this alkaloid has over atropia, consists in the more speedy disappearance of its paralyzing effects. Within the past year, while experimenting upon atropine and other solanaceous alkaloids, Professor Ladenburg, of Kiel, has discovered that atropine can be formed artificially, and in his researches he has evolved from among the tropeine compounds, one which he has called "homatropine hydrobromate." This is very complex in chemical structure, but it is strongly claimed that in practice, its action is less powerful than that of atropia, and that in from twenty-four to thirty-six hours the paralysis of accommodation has disappeared.

I give hereafter some of the recent views upon these two new mydriatics.

Prof. Ladenburg has recently asserted that "there are only *two* mydriatic alkaloids, atropia and hyosciamine (daturine, duboisine, hyosciamine, being not merely closely related, but actually identical)."

The April number of the *Quarterly Journal* contains a notice of an article from the *Revue des Science Medicales*, January, 1880, on duboisia and its therapeutic use. I quote the article so far as it relates to its action in the eye:

"Finally, duboisia causes dilatation of the iris and paralysis of accommodation, and seems to act by direct paralysis of the motor nerve filaments of the ciliary muscles and nerves.

Besides, the action on the iris and the ciliary muscle is exercised independently; the iris remains paralyzed longer than the muscle of accommodation. Duboisia differs from atropia by the persistence and greater rapidity of action on the muscles of accommodation.

"Duboisia is indicated in all cases in which atropia acts badly. However, in two cases of iritis, reported by Galezowsky, it has caused as much irritation as atropia."

The *Medical Record* of March 5th, 1881, reports the following synopsis of the physiological action of duboisine, as given by Epifanoff, of St. Petersburg. Epifanoff, of St. Petersburg, says, "that the physiological action of duboisine is very similar to that of atropia, that the cardiac inhibitory centers are first excited and then depressed, and that the same effect is produced on the cardiac excito-motor centers; the latter are first irritated, then paralyzed.

"Although the breathing is accelerated, duboisine does not act on the respiratory centers. It dilates the pupil, paralyzes the muscular coat of the stomach, intestines, uterus, and the bladder. Salivary secretion is also lessened. Motor paralysis is produced by smaller doses than of atropine."

Dr. S. D. Risley, lecturer on ophthalmology in the University of Pennsylvania, ophthalmic and aural surgeon to the Episcopal Hospital, Philadelphia, presents in the April number of the *Quarterly Journal*, 1880, an article on "the relative value of the sulphates of atropia and duboisia in ophthalmic practice."

He claims for the duboisia, that its action in paralyzing the ciliary muscle is quicker, while its effects disappear sooner, than is the case with atropia.

In the March number of "*New Remedies*," 1881, appears the following extract from a paper by Dr. P. D. Keyser, of Philadelphia, on the relative values of homatropine hydrobromate, and duboisine:

"Duboisine is more powerful; its effects more persistent; it does not cause conjunctival irritation; it completely dilates the pupil, and paralyzes accommodation. He notes that in its

use, it should not be allowed to flow into the tear duct, owing to the risk of toxicological effects."

HOMATROPINE HYDROBROMATE.

This new mydriatic, according to the *London Lancet*, May 22d, 1880, was brought to the attention of the profession by Mr. John Tweedy and Dr. Sydney Ringer (in point of fact it was first discovered by Professor Ladenburg, in his laboratory at Kiel). It is claimed to be a bland and efficient mydriatic, rapid in its action, and of comparatively short duration. Within four and twenty hours after an application, the accommodation, after complete apparent suspension, recovers its pristine vigor. Its action upon the ciliary body is said to be decidedly more prompt, though not as intense as that of atropine.

Dr. Risley, of Philadelphia, in the *Quarterly Journal* for January, 1881, has a long article on the use of homatropine hydrobromate. He gives the results of its action in thirty-seven cases, where it was used in the correction of refractive defects, and he arrives at the following conclusions:

1. "That homatropine hydrobromate in solutions of two, four and six grains to the oz., is competent to paralyze accommodation."

2. "That in from sixteen to thirty hours this paralysis entirely disappears."

3. "That dilatation of the pupil accompanies the paralysis, and is more persistent; the probable duration being fifty-eight hours."

4. "That it is no more liable to produce conjunctival irritation than atropia or duboisia."

5. "That it produces far less constitutional disturbance than either of the old mydriatics."

Dr. P. D. Keyser, in his paper previously referred to, in speaking of homatropine hydrobromate, confirms the observations of Volckers and Fuchs, "that complete paralysis of accommodation does *not* take place in the majority of cases,

from its use, and that the pupil is not always dilated to its full limit. The weaker solutions are not potent enough to accomplish full paralysis, and stronger solutions cause so much irritation, as to lead to antagonistic action of the circular fibres of the iris. The chief value of hydrobromate of homatropine lies in the rapidity with which its effects pass away, thus enabling the accommodation to be temporarily paralyzed for purposes of diagnosis."

MYOSITICS.

Thus far, our principal agent in producing contraction of the pupil, is the sulphate of eserine, or the active principle of the physostigma venenosum (calabar bean). This plant was originally found in western Africa, but has recently been introduced into India and Brazil.

It is only within the past three or four years that the alkaloid has been eliminated. Formerly, the remedy was principally used, as prepared in thin gelatine wafers, which were introduced under the lids and allowed to dissolve there. The action was slow and unsatisfactory, and, in consequence, the drug did not play a very important part in ophthalmology.

Since the eserine was given to the profession, however, it has leaped almost at a bound into high rank in importance to the ophthalmic surgeon. As has been before noted, but for eserine, the operation of sclerotomy would scarcely be possible, and in all penetrating wounds of the periphery of the cornea, where there is danger of the fibres of the iris being caught, its use is indispensable. It has been found that many cases of acute glaucoma yield to its influence, thus rendering operative interference unnecessary.

Many ophthalmic surgeons consider its use in central ulcers of the cornea, indicated at all times and in all cases; I take decided issue to this latter, but have not space here to discuss the same.

The only other myositic of value, at our command, is the pilocarpine, prepared from "jarborandi" (or what seems more

probable from recent investigations, is a different alkaloid, which has been named jaborine).

This remedy possesses nothing like the power of the eserine in producing contraction of the pupils, but is of value in many cases, especially of certain forms of iritic trouble dependent upon rheumatic conditions.

It is doubtless this property in the drug which has produced so good an influence in the hands of Dr. Williams, of Boston, in the treatment of episcleritis.

The pilocarpine certainly seems to act better in roles where the rheumatic diathesis is present, than elsewhere.

A great drawback in the use of the myositics at our command, is the pain and spasm produced. Another lies in the fact, that when used to counteract the effects of the mydriatic, (especially of atropia), it has to be instilled a number of times, as the contractile influence soon passes away, while the influence of the mydriatic is much more lasting.

I have annexed to this report, in the shape of an appendix, a brief abstract of the proceedings of the American Ophthalmological Society, held at Newport, R. I., July 22d and 23d, 1880. And also of the Ophthalmic Papers read before the Section of Ophthalmology, etc., of the Thirty-first Session of the American Medical Association, New York, January, 1880.

APPENDIX.

Transactions of American Ophthalmological Society, held at Newport, R. I., July 22d and 23d, 1880.

BY DR. H. KNAPP.

In the *Archives of Ophthalmology* for September, 1880, appears a report of the above, which I draw from to incorporate in this paper in the absence of the "proceedings," which have not yet appeared.

1. Dr. David Webster, of New York, reported eleven cases of sympathetic inflammation following cataract operations. In the discussions which followed, Dr. Matthewson, of Brooklyn, N. Y., spoke of a case of extraction, without accident, with $\frac{20}{20}$ four weeks after operation, after which sympathetic inflammation followed and both eyes were lost. Dr. Derby stated that in 300 Graefe extractions he had seen no sympathetic inflammations. Dr. E. Williams, of Cincinnati, spoke of an extraction in an old man, occurring in his practice, which was followed by sympathetic ophthalmia, and both eyes were lost. It was the only case out of many hundreds of extractions. He operates only when both eyes are blind. Dr. Knapp thought that rule would not be absolute. He would operate on one eye when it offered the greatest chances of success. By waiting for total blindness in the second eye, there was danger of the first becoming hyper-mature and complicated. Dr. Noyes, of New York, reported two cases of sympathetic ophthalmia out of twenty-five extractions. Dr. Harlan, of Philadelphia, reported one case. Dr. Agnew, of New York, thought that all the cases where this result followed were not

brought to our notice. He would estimate them at not less than from two to three per cent.

2. Dr. C. S. Bull read a paper on vascular tumors of the eyelids. Dr. Agnew had seen a case that reached over the brow. Dr. Knapp spoke of a case in a child fifteen months of age, where the tumor at birth was only the size of a pea, but which when seen by him involved both lids, the orbit, the side and bridge of the nose, the brow, left side of the forehead, the upper part of the left cheek, the entire left temple, and a large part of the left side of the head below and behind the ear. Nothing was attempted for it; but he considered the case as a warning "never to postpone the cure of vascular tumors of the lids, as soon as they show the slightest tendency to grow." Dr. Loring, of Washington, presented a case of aneurismal dilatation of a branch of the central retinal artery, accompanied with a drawing. Dr. L. Howe, of Buffalo, related a case of blepharoplasty by transplantation of skin without a pedicle. Dr. Matthewson, of Brooklyn, communicated a precisely similar case.

In the discussion that followed, Dr. Agnew recommends to cut the flap with blunt pointed scissors, one branch of which can be run under the skin and advanced as cloth is cut. Dr. Knapp has cut and removed pieces of skin in the same way, in operations for ptosis and ectropium. Dr. Noyes proposed the name of transportation, instead of transplantation, and takes the flaps from the chest. Dr. Wadsworth, of Boston, spoke of a case published by him some years ago, that he had last seen four months after the operation, in which the flap had not shrunken. Dr. Kipp, of Newark, has performed the operation four times; twice on the same person; in two instances the whole flap sloughed; in the other two the epidermis only, but the subsequent shrinkage left the ectropium about as bad as before.

Dr. Heyl, of Philadelphia, read a long paper on retinal lipœmia.

Dr. Knapp spoke of two cases of diabetic retinitis recently seen by him.

Dr. Little, of Philadelphia, related a case of paralysis of the superior oblique, and another of the inferior oblique; both of which were cured by pot. iod. strychnine and electricity.

Dr. H. D. Noyes spoke on the treatment of lacerated eyelids, and mentioned a case of congenital coloboma of the upper lid. He afterwards spoke of a case of glioma of both eyes, resulting in death.

Dr. C. R. Agnew presented a photograph of a case of congenital coloboma of the upper lid, successfully operated upon.

Dr. Agnew also referred to a case of glioma, in which he removed both eyes in 1875. Patient is still living.

Dr. H. D. Noyes exhibited a new ophthalmoscope.

Dr. Kipp, of Newark, read a paper on keratitis from malaria.

Dr. Wadsworth, of Boston, presented a paper on neuritis after measles.

Dr. Knapp spoke of a case of ischæmia retinæ.

Dr. Knapp also read a paper on sclerotomy, for glaucoma, based on eight operations in six different patients, made according to Wecker's method. In the discussion which followed, Dr. Noyes stated that he had made the operation but once unsuccessfully, and it had to be followed by iridectomy. Dr. Noyes also spoke of a case of megalophthalmus congenitus, where he extracted the entire iris. Case did well.

Dr. Risley, of Philadelphia, performed sclerotomy in a case where adhesions had followed iridectomy. Success good and permanent.

Dr. Derby, of Boston, performed sclerotomy in the eye of a child, the iris prolapsed, wound never healed, and the eye was removed.

Dr. Wadsworth, of Boston, reports one case—acute glaucoma—in a patient sixty years of age. No improvement in vision.

Dr. Buller, of Montreal, one case where tension had been preserved for a month, then repeated attacks; downward iridectomy with good and lasting results.

Dr. John Green, of St. Louis, uses the old sickle needle for division of the capsule in secondary and soft primary cataract, with great satisfaction.

Dr. Green related a case of recurrence of glaucoma with hemmorrhagic retinitis, from one instillation of duboisine. Cured by pilocarpine.

Dr. E. Williams, of Cincinnati, read a paper on two cases of serous cyst of the iris.

In the subsequent discussion, Dr. Knapp reported a case of a small recurrent cyst in the tissue of the iris.

Dr. Buller reported a similar case.

Dr. Kip reported a case in which a small shot was at the bottom of the anterior chamber. Near the upward coloboma a small cyst of the iris appeared, which went away spontaneously.

Dr. Agnew, as an operative measure, recommends incision on the side of the cyst, to be enlarged with scissors.

Dr. C. R. Agnew exhibited a drawing of a persistent pupillary membrane, and afterwards read a paper on the insufficiency of the ophthalmoscope, as a sole test for ametropia.

Dr. Green treated a case of detachment of the retina with injections of pilocarpine.

Dr. Henry W. Williams, of Boston, used injections of pilocarpine with brilliant success in cases of episcleritis.

Dr. Wadsworth showed photographs of sections through the yellow spot made by Prof. Arnold, of New York.

Dr. Wadsworth afterward exhibited a keratometer for determining the radius of curvature of the cornea.

Dr. Jeffries read a paper on the different tests of color blindness. He advocated legislative action to enforce, by experts, the examination of persons in the service of railways and the marine. Resolutions to that effect were passed by the society.

Dr. Thompson, of Philadelphia, reports a method of fastening on a stick fifty movable and numbered skeins of colored

wools, and requiring the persons examined to match any given skein. By this means errors can be easily recorded.

Dr. Henry W. Williams, of Boston, read the last paper of the meeting, on "enervation of the eye."

Abstract of Ophthalmological Papers, read before the Section of Ophthalmology, etc., of the Thirty-first Session of the American Medical Association, New York, June, 1880.

From the Archives of Ophthalmology, September, 1880.

1. Dr. H. Knapp—three cases of tumor of lachrymal canal, with demonstration of microscopical sections.

2. Dr. Kipp, of Newark, exhibited photograph of a woman affected with orbital tumor.

3. Dr. E. Seguin read continuation of his paper on the "training of idiotic eyes."

4. Dr. H. Knapp—paper on "refraction of light by asymmetrical surfaces, illustrated by models."

5. Dr. Smith, of Detroit, exhibited an eye in which there was supposed to be ossification of the lens.

6. Dr. E. Gruening, of New York—paper on Wickersheimer's preservative fluid.

7. Dr. Jeffries, of Boston—paper on color blindness, with different methods of testing. His examinations to that date amounted to about 30,000, with a percentage of color blind of four per cent.

8. Dr. D. Hunt, of Boston—variability of the human eye.

9. Dr. E. Gruening, of New York, exhibited a magnet for the removal of particles of steel and iron from the interior of the eye.

10. Dr. T. R. Pooley, of New York, read a paper on "the

detection of the presence and the location of pieces of steel and iron in the eye, by the indication of the magnetic needle."

11. Dr. Risley, of Philadelphia—specimen of dermoid tumor of the cornea.

12. Dr. Peck, of New York—a case showing present condition of lupus of the conjunctiva.

APPENDIX No. 1.

"*Visual Power and Color Blindness. Act of Legislature of Connecticut, Requiring Examinations. Rules and Regulations of the State Board of Health.*"

An Act directing the examination of railroad employes for color blindness and visual power.

Be it enacted, etc:

SECTION 1. The State Board of Health shall prepare rules and regulations for the examination and re-examination of railroad employes in regard to color blindness and visual power; prescribing the method in which, and the intervals at which, such examinations shall be made; the maximum fee to be charged for such examination: the form of certificate to be issued by the examiners and such other regulations as said board may deem necessary. Said board shall send a copy of such rules and regulations to every railroad company and trustee operating a railroad in this State, on or before the 1st day of July, 1880. Said board may, from time to time, make such changes in said rules and regulations as they may deem best, and communicate the same to said companies and trustees. Said board shall annually, in the month of May, recommend two or more medical experts to make the examinations above referred to, and the Governor shall annually, on or before the 1st day of July, appoint not less than two medical experts, any one of whom shall be authorized to conduct the examination for color blindness and visual powers, and issue certificates in accordance with the ends of the Board of Health.

SEC. 2. On or before the first day of October, 1880, every railroad company and trustee operating any railroad in this State, shall cause every person in their employ as locomotive engineer or fireman, train conductor or brakeman, station

agent, switchman, flagman, gate-tender, or signalman, to be examined at the expense of the railroad company, by one of the examiners appointed by the Governor, in regard to color blindness and visual power, and shall cause a like examination to be made of all persons employed after said date in either of the capacities named above, and shall cause re-examinations to be made in accordance with the rules prescribed by the Board of Health.

SEC. 3. Any railroad company or trustee operating any railroad in this State, employing, after the first day of October next, in any of the capacities specified in the second section of this Act, any person who does not possess a certificate of freedom from color blindness and possession of normal visual power, duly issued in accordance with the provisions of this Act, or knowingly employing in any such capacities any person whose certificate has been revoked by the examiners, shall for each and every offense be punished by a fine of not less than $200 nor more than $1,000.

Approved March 25th, 1880.

RULES FOR EXAMINATION OF RAILROAD EMPLOYES UNDER PRECEDING ACT.

RULE I. All railroad employes requiring examination under the law of March 25th, 1880, shall be divided into two general classes. Class first shall include engineers, firemen and brakemen. Class second shall include train conductors, station agents, switchmen, flagmen, gate-tenders and signalmen.

RULE II. Certificates shall be given for each position in accordance with the succeeding rules for examination. Promotion from one class to the other requires re-examination and certificate.

RULE III. Re-examinations shall be made: 1st, after any disease of the eyes; 2d, after injuries affecting the head or eyes; 3d, after any disease or trouble of the brain, and after long-continued illness, as typhoid fever; 4th, after mistakes or acts which call in question the visual powers; also, whenever directed by the Board of Health.

RULE IV. The examiners shall report regularly to the State Board of Health, and their work shall be at any time open to the inspection of any member or members of said Board.

RULE V. The regulations for conducting the examinations and the standards for each class shall be determined by the Board of Health, and not by the examiners. New rules and regulations shall be adopted from time to time, as required, and alterations and amendments made.

RULES FOR CONDUCTING EXAMINATIONS.

RULE I. For the qualitative estimation of color blindness, the following tests are to be employed: Holmgren's worsteds, the tables of Stilling, Donder's color test patterns, Pfluger's letters with tissue papers, Daae's tests, and Woinow's revolving cards may also be used. For the quantitative test for color blindness, Donder's reflecting spots, Donder's method with transmitted light, and Holmgren's shadow test shall be employed.

RULE II. The following are the requirements for a certificate in the first class: (1.) Healthy eyes and eyelids, without habitual congestion or inflammation. (2.) Unobstructed visual field. (3.) Normal visual acuteness. (4.) Freedom from color blindness. (5.) Entire absence of cataract or other progressive disease of the eyes. The second class shall have: (1.) Healthy eyes and eyelids, without habitual congestion or inflammation. (2.) Unobstructed visual field. (3.) Visual acuteness at least equal to three-fifths without glasses, and normal with glasses, in one eye, and at least one-half in the other eye with glasses. (4.) Freedom from color blindness in one eye, color perception at least equal to three-quarters in the other eye.

RULE III. In the case of employes who have held their positions five years or more, the standards required in each class shall be determined under special instructions from the Board of Health.

APPENDIX No. 2.

INTERNATIONAL STANDARD TESTS AND REQUIREMENTS.

The three departments of the United States government that have thus acted in reference to the control of defective vision and color blindness have not yet established any standard requirements by which their medical officers can be governed in their decisions. The value of such is shown by the result of the following petition presented to the last Congress, which was signed by the professional scientists of our New England universities as well as ophthalmic surgeons:

PETITION.

"*To the Honorable the Senate and the House of Representatives in Congress assembled:*

"WHEREAS, A normal acuteness of vision and good color perception are needed in officers and crews for the safe navigation of vessels; and, whereas, most maritime nations now require a certain standard for these qualities by absolute test, the undersigned would most respectfully petition your honorable body to take into consideration a general law of control, in the navy and merchant marine, of color blindness and visual acuteness, and the agreement by an international commission of definite and uniform standards of testing these necessary qualifications."

This petition was presented by Hon. B. W. Harris, January 29th, 1880, and referred to the naval committee, who gave a hearing to the petitions March 3d, 1880, and reported to Congress as follows:

COLOR BLINDNESS IN THE NAVY.

The committee on naval affairs, to which were referred the petition of B. Joy Jeffries and others, and the several petitions in aid thereof, has considered the subject, and submits the following report:

The petitioners are among the best and most scientific men in the country. They take a very deep interest in the subject, and we think they are fully justified in presenting it to Congress, and urging action upon it. Its importance cannot, in the opinion of the committee, be over-estimated. Vast numbers of human lives and a commerce of immense value depend for their safety upon the perfect eyesight of the men in charge of vessels and railroad trains. Persons who cannot distinguish perfectly the colors of lights, flags, signals and buoys, or are liable to mistake them, or who, from want of acuteness of vision, cannot perfectly observe the forms of objects at ordinary distances, ought not to be placed in positions of responsibility on ships at sea. A perfect watch at sea requires perfect eyesight. The subject is comparatively new, but not the less important; and perhaps, for the reason that it is new and important, it should have the more careful attention.

Throughout the civilized world there has been, for the last few years, great attention drawn to defective vision and color blindness among sea-going men, as well as railroad employes.

Reliable statistics from the best medical experts in Europe and America have proved the existence of color blindness in about four per cent of men, while in women this peculiar defect is very rare. Color blindness exists as red or green blindness, one involving the other. Violet or blue-yellow blindness also exists, though more rarely.

Red and green being the colors which all maritime nations have agreed to show on the port and starboard sides of vessels at night, and red buoys, red storm signals, and red lighthouse lights being used, of necessity requires on the part of those navigating vessels a normal or perfect perception of colors, and this, of course, in addition to good eyesight for form, or normal visual power.

In proportion as the person is color blind, in that proportion will the red and green lights or signals be indistinguishable from each other, and the person be uncertain which he sees. This defect exists in all degrees of severity, the lightest forms often being the most dangerous, since, if the person who can see a strong red light at a certain distance, while the paler green light cannot be distinguished from the mast-head light, he may be deceived as to his surroundings and fall into fatal errors which he cannot account for or excuse himself for, but which may be wholly attributable to color blindness, of the existence of which he is himself wholly unconscious. Just such a case has been reported.

Color blindness is very hereditary. When congenital it is incurable, and cannot be palliated by any practical methods. It is also said to be produced by injury, disease, and poisoning by alcohol and tobacco. All these conditions are now recognized in regulations for its control on land and sea.

Till Professor Holmgren, of Sweden, introduced his method of examination, medical experts had no accurate and quickly applied means of testing for color blindness. This is largely the reason why it and also defective visual power have been overlooked in the past.

Now that attention has been so generally called to these sources of danger on land and sea, European governments and railroad corporations have enacted laws and adopted rules of control. In this country only one State (Connecticut) has passed the requisite laws. Some railroad corporations have acted, but, as was also first done in Europe, in an uncertain manner, from lack of recognizing the necessity of medical experts to carry out the examination in a thorough and systematic manner.

The maritime nations of Europe have introduced these tests into their navies, and some of them into the merchant marine. Our government has recognized the importance of the subject, as shown by the action of the three departments, army, navy and marine hospital service. In the last, it is made compulsory with pilots, but not with seamen.

The supervising Surgeon-General of this department has well shown, in his annual report for 1879, the great value of enforced physical examination of seamen, a part of which is testing the color sense and visual power.

To the medical officers alone of these several departments is intrusted this important duty. They are provided with the "manual" lately published by B. Joy Jeffries, M. D., the head petitioner, who has given the subject great attention and careful study, and the material necessary to carry out the test of Professor Holmgren therein recommended. There are, of course, no returns from these departments on these points, regulations having been so recently made. When, as in European navies, the tests have been carried out, about the same proportion of seamen are found color blind as among railroad employes, viz: from two to five per cent.

The dangerous defect in so large a number of persons cannot but explain the cause of many marine disasters otherwise unexplainable.

A classification in Europe of the reports of 2,408 accidents, between 1859 and 1866, showed:

Want of skill, carelessness of the ship personnel, or accidents which it was impossible to prevent or avoid	1,562
Error of pilot or captain	215
Want of observation or proper interpretation of the rules of the road	537
Undetermined causes	94
Total	2,403

Under the last three heads are 846 accidents which might have been due to color blindness or defective vision.

While maritime powers have sought to eliminate the danger from color blindness by requiring examinations, all have not directed such methods to be used as would render the elimination certain. Moreover, all are not agreed as to the requisite amount of color perception necessary to render a lookout perfectly safe for the vessel the lookout is on, as well as for the one approaching. There is also no definite standard of visual power acknowledged as necessary in the navigation of vessels. Mutual intercourse and the comparison of the results of differ-

ent tests would enable the maritime nations taking part in it to avail themselves of each other's experience, and readily lead to the adoption of the best methods of examinations and the requisite standard of requirements.

Dr. Jeffries, in his manual above mentioned, says: "The test of color blindness now being so simple as to be readily carried out by the surgeons attached to vessels, especially naval medical officers, there can be no great difficulty in having an international commission meet and frame the laws or regulations which shall govern all the navies and merchant marines of the great maritime nations at least. It would then be as readily recognized that every officer and man must be able perfectly to distinguish the red and green lights as to know where they belong and what they mean." The author's experience is based on the examination of over 30,000 individuals, and corresponds with that of all the scientific European observers. The final conclusion in his manual is: "An international commission should be called to establish rules for the control of color blindness on the sea, and the carrying out of the same examinations among pilots, masters and crews of steamers and sailing vessels in the navies and the merchant marine."

It will avail but little, if, of two vessels of different nations meeting, but one of them has no color blind person on the lookout. An international commission would, from the weight of its authority, force examinations, even among those nations not participating in it, as well as settle standards, methods, and requirements.

The committee recommends the adoption of the joint resolution herewith reported, as a first step toward the accomplishment of the object in view.

In the House of Representatives, May 24th, 1880, Mr. B. W. Harris, from the committee on naval affairs, reported the following joint resolution relating to color blindness and visual acuteness in persons employed in the navy and merchant marine:

"Whereas, it is important that definite and uniform standards of examination for color blindness and tests for visual acuteness in persons employed in the navy and the merchant marine should be established, which shall be in harmony with such standards and tests established, or to be established by other nations: Therefore,

"Resolved, by the Senate and House of Representatives of the United States of America in Congress assembled, that the Secretary of State is hereby authorized to designate such officer or officers in the diplomatic or consular service of the United States, and the Secretary of the Navy is hereby authorized to detail such officer or officers of the navy of the United States as may be deemed qualified for such service, to attend and represent the United States in any international congress held to consider and act on said subject. And such officers so designated and detailed, shall join in a report of the proceedings of such congress and of the conclusions reached thereby, if any, to the President of the United States, to be by him laid before Congress, to the end that an international system of examinations and tests as aforesaid may be established by law."

This bill will come up at the next session of Congress. Meanwhile, the attention of other maritime nations is being called to the whole question, and the usefulness of the proposed international commission. Each country would naturally include in its representatives, besides officers of the navy and diplomatic service, some professional scientists, who would from their practical acquaintance with the subject, be able to answer the questions which would arise in such a commission. Naval officers know what is required to be seen, what colors and combinations, etc., and they must depend on the medical experts as to how much visual power is necessary for this, as well as how good color perception. As to the practicability of the various methods of examination, their advice also must be sought, since it is only these medical experts who have tried these methods by the thousands of examinations lately made in Europe and this country.

APPENDIX No. 3.

HEADQUARTERS OF THE ARMY,
ADJUTANT-GENERAL'S OFFICE,
WASHINGTON, August 13th, 1879.

General Orders No. 82.

By direction of the Secretary of War, the following additional instructions with regard to the examination of the eyes of recruits are published for the guidance of recruiting and medical officers, and boards of inspection. * * * This test will be made by means of cards, prepared under the direction of the Surgeon-General of the Army. The black spots on the cards will be circular, four-tenths of an inch in diameter, and the recruit must be able to count them with facility at twenty feet distance.

At the principal recruiting depots all accepted recruits will be examined for color blindness by the medical officer on duty. Any defect observed will be noted on the descriptive list of the soldier, but will not, of itself, constitute a cause of rejection, except in the case of enlistments for the signal corps. The examination for this defect will be made by the method of Holmgren. Test wools for this purpose, accompanied with directions for their use, will be issued to the principal recruiting depots by the Surgeon-General.

By command of General Sherman.

E. D. TOWNSEND,
Adjutant-General.

By a circular of the Treasury Department, dated June 11th, 1879, medical officers of the marine hospital service were directed to examine, free of expense, any seamen owners of vessels presented to them. Such examinations were not com-

pulsory. Since then compulsory examination of the visual power and color perception of pilots has been ordered by the Treasury Department.

[CIRCULAR.]

EXAMINATION OF PILOTS FOR COLOR BLINDNESS.

TREASURY DEPARTMENT, WASHINGTON, D. C.,
February 17th, 1880.

1880 : Department No. 14—Steamboat Inspection.

To Supervising and Local Inspectors of Steam Vessels: By an amendment of Rule 47, Rules and Regulations of the Board of Supervising Inspectors, adopted at the 28th session of the board, recently held in this city, and which was approved by the Secretary of the Treasury February 13th, 1880, and promulgated in department circular No. 13, 1880, it was ordered that all persons applying for either a renewal of license, or an original license, as pilots on steam vessels, shall be required to undergo a visual examination, in order that it may be determined whether such person can properly distinguish the colored lights used as signals on steam vessels; and, in future, inspectors will issue pilots' licenses only upon certificates of surgeons of the United States marine hospital service that applicants therefor fulfill all the requirements of the rule referred to.

Under the provisions of department circular of June 11th, 1879, surgeons of the marine hospital service are directed to make such examinations free of expense to persons applying therefor.

JOHN SHERMAN,
Secretary.

This circular has now been modified by the following one. They are of importance to all pilots in the United States, and those employing them.

[CIRCULAR.]

MODIFICATION OF DEPARTMENT CIRCULAR No. 14—RELATING TO EXAMINATION OF PILOTS FOR COLOR BLINDNESS.

TREASURY DEPARTMENT, WASHINGTON, D. C., March 9th, 1880.

1880: Department No. 19—Steamboat Inspection.

To Supervising and Local Inspectors of Steam Vessels: In view of the expense and hardship likely to accrue to pilots living at points remote from the stations of the revenue marine hospital service, in visiting such stations for the purpose of being examined as to color blindness, as required by the amendment to Rule 47, Rules and Regulations of the Board of Supervising Inspectors, department circular No. 14, dated February 17th, 1880, is hereby so modified as to allow pilots employed at places remote from a marine hospital station to be examined by any respectable resident physician, whose certificate that such pilot is exempt from the disease known as color blindness shall accompany the license and oath of office of such officer when sent to any board of local inspectors for renewal of his license in the manner provided in Rule 42, Rules and Regulations. Upon the receipt of the certificate a license shall be issued the same as though said examination had been made by a marine hospital surgeon. This modification is not to be applied to applicants for original licenses. They, in all cases, must be examined in the manner provided in circular No. 14.

A second visual examination will not be required in any case, and inspectors will therefore retain all certificates upon their permanent files for reference in cases of applications for renewal of license.

JOHN SHERMAN,
Secretary.

During the past year examinations of the visual power and the color perception of all sailors entering the United States navy have been carried out. The cadets entering and leaving

the United States Naval Academy at Annapolis are, of course, also tested, as part of their physical examination, by the inspecting medical board. The necessity for a knowledge of the color perception of all officers and men already in the navy is shown by the following:

[CIRCULAR.]

NAVY DEPARTMENT,
BUREAU OF MEDICINE AND SURGERY,
WASHINGTON, D. C., March 30th, 1880.

Upon the receipt of this order and the colored worsteds to be used as tests, medical officers of ships and stations will make a careful examination of all persons in the navy as to their color sense, the result to be reported to this bureau according to the accompanying form. Quarterly returns will also be made of the result of the examinations of those who shall be hereafter examined for the service.

The method to be employed is that of Holmgren. Additional tests may be employed at the option of the examiner, in which case the fact is to be so stated..

PHILLIP S. WALES,
Surgeon-General U. S. N.

APPENDIX No. 4.

The *Boston and Surgical Journal* for March 10th, 1881, contains the following extract from a bill reported to the Massachusetts Legislature, by the Railroad Committee, during the past winter:

"No railroad company shall employ any person, in a position requiring the distinguishing of form or color signals, unless such person within two years next preceding has been examined for color blindness, and other defective sight, by some competent person, and has received a certificate that he is not disqualified, by reason of any defect of vision, to perform the duties of such position."

The penalty for every person so employed is a fine of $100, and the Act is to take effect July 1st, 1881.

REPORT ON MEDICAL EDUCATION.

BY A. B. STOUT, M. D., CHAIRMAN.

MR. PRESIDENT AND MEMBERS OF THE MEDICAL SOCIETY OF THE STATE OF CALIFORNIA: It is the agreeable duty of the Standing Committee on Medical Education, in accordance with the Constitution of this Society (Art. V, Sec. 10), to report annually on the general condition of Medical Education in the State of California, etc.

In this regard, your Committee enjoys the privilege, without being intrusive, to offer a critical review. It would indeed be a prejudiced mind that would not give the meed of praise for the admirable progress made by our young State in the course of thirty-two years in her general, as well as medical institutions devoted to public education.

We may question if any State in the Union has made more brilliant progress, or offered more flattering results than has California. This is as it should be—this is as it must continue to evolve—for we have no time to lose in availing ourselves of the immense competitive advantages which our State, and most especially its fortune-favored city San Francisco, present, as one of the great centers of the world, in the universal rivalry in general education and medical education in particular. The destiny of nations is assuming an accelerated speed in its civilizing evolution. Old nations are aroused as by the booming of a great gun from their dream-sleep of self-esteem; ancient nations are germinating with a craving appetite for the nutriment of knowledge and self-sustaining culture. Those nations already mature in their arts and sciences, are almost wildly struggling for the ascendancy in the arena for the diffusion of intellectual attainment.

Presently will all these nations whose shores are bathed with the waters of the Pacific Ocean, look to our State for the resources of enlightened life. The word of truth can no longer be propagated by effete systems, like the abandoned pony letter-carrier. All our systems must now advance under the potent stimulus of power-pressure, steam and electric impulse. The light of the new force rivals the sun-worship of the olden people—Isis vails her eyes. Shall this pageant of learning be lost or won to California? With proper precautions it may certainly be attracted here. Here may modern science be concentrated to a focus to illuminate the Pacific Ocean hemisphere; nay, more, from the longitude of the Cape of Good Hope to that of Cape Horn. Consult, gentlemen, the globe of the world; these longitudes include our own United States. But our great East cannot dispense with our great West, and while we work we possess the "material" to work for our united, and hoping never-to-be-disunited, nation. In fact, omitting Europe, North Africa, Central and North Asia, the area of our prospective center comprises two thirds of the area of the globe. Consult your globes, gentlemen. How shall this guerdon be won in the concourse of competitive science-rivalry? In a word, by conquering the champion belt for the possession of higher, nay, highest, educational endowments and scientific institutions.

The educational struggle for a higher grade of teaching, a longer term of study, and more advanced preliminary attainments for admission to the Medical curriculum, finds its origin in the wider diffusion of education. A universal enlightenment ensued. The great reformation in Europe unbound the fetters of restricted education and enforced ignorance. *Then*, education was for future life in heaven. *Now*, the public education is for public life on earth. Home is the school of religion, and every home controls its *via cœli*, its own system of faith. Our limits permit not digression, but the grand subject explains the loud call for more help in need—more nutrient education. In our own favored land the vast sums restored to the people after the realization of the people's taxation, in

the expenditure on public education, has not been without its noble harvest. In sowing our great fields much seed may be lost, but the gathered fruit proves the enriching political economy. Thus witness:

GOLD IN THE TREASURY.

WASHINGTON, April 7th.—"A treasury official remarked to-day that there was now amassed in the vaults of the Department a larger amount of gold than was ever known to be in one place in the history of modern times. At least, and probably more, than could be authenticated as existing in a single treasury at one time before in the world. There are now about $173,000,000 in gold coin and bullion, exclusive of some $50,000,000 in silver. The Bank of England has only about $75,000,000 in gold. What is more singular, it stays in the vaults, no matter what the demand may be for it. As fast as it is paid out it returns, showing that as long as confidence is maintained it is not the favorite currency."—[*Alta California*, April 8th, 1881.

Compare this statement, gentlemen, with the national debt at the close of the late civil war. This is the harvest of ripe education. This picture gives the true portrait of the enlightened man. It answers the invidious question, "Is the Republic a failure?" With this high education the perception of the acute people-mine becomes most finely sharpened. These perceptions will in the future draw the discriminating line between the accomplished physician and the mercenary pretender. Laws may protect; a diploma may be a will-o'-the wisp; but education of the highest order will alone decide the noisy controversy. In the present state of public education, the physician must do what heretofore has scarcely been demanded. To maintain the prestige of his influence he must possess an education *higher still*—superior to that of the community whose confidence he solicits. Give him this boon, and soon will laws slumber in the statute book and the swarm of free-right charlatans disappear. The physician must excel in

hygienic knowledge his constituents, or his constituents will gracefully bow him out of court.

LATIN AND GREEK.

We are not so wrapped up in the old dogmas of university education as to insist that the student who desires a diploma to practice medicine should be profoundly versed in old classic literature, with that familiarity in Greek and Latin that he can declaim the orations of Cicero or the Iliad of Homer as so adorns the graduate of Eaton or Cambridge. We would, however, in mercy to him in his coming struggle with the various departments of his future profession and their classically derived nomenclature, most humanely implore him to begin with a respectable culture in the Greek and Latin languages; premising, however, that these languages be taught to him as *living languages*. In German gymnasia they are taught as spoken languages, and may be so, precisely as well as the French or the German. One fact is evident, that to study Latin and Greek is to learn our own simpler English Grammar, and in viewing their comparative construction, obtain an easy key to all the Aryan languages. Hence, we cannot urge too much the possession of these languages as *living and spoken tongues*. They are the ever present, ever indispensable tools, interpreters and armamenta in the medical student's education. Why should they be regarded as *dead* languages, when they live, to the terror of every student, in every text-book, and still more in every more advanced work of the science of man and nature?

How easily are truths acquired and technical terms comprehended, no longer to be forgotten, if they can at once be traced to the roots whence they have been derived. Says Chenier: "Three thousand years, crushing through the crowns of ephemeral potentates, have passed over the ashes of Homer, and during three thousand years, Homer, listened to with honor, is still young with glory and immortality." To this may safely be added that for the succeeding three thou-

sand years will the survival of this language be an undying necessity in the life of science.

Still more to impress the mind with the importance of the Latin and Greek languages in the nomenclature of science, we insinuate our literary knife and fork, and extract a very nourishing morsel from the Editor's Table of the *American Naturalist* of March, 1881, page 219, which may prove a beacon to many a student:

"Nomenclature is an essential part of language. Owing to the sense limitations under which we exist, objects must have names. So also must general concepts derived from objects have names. The one essential of naming is, of course, that distinct things shall have distinct names; and the second essential is, that each object or concept shall have but one name. These necessities become more and more urgent, as the number of known objects become greater. In order that each object and concept shall have but one name, cultivators of the natural sciences have determined to use that name which was first proposed, with such a definition as shall enable them to ascertain the application intended by its author. All subsequent names are thus necessarily rejected as waste, to be forgotten as soon as possible. Moreover, names created for objects or concepts not defined—are rejected, as not being really proposed; for a name which is not applied to a stated object or concept is quite as little nomenclature as an object or concept without a name. A name is, in fact, a short substitute for a definition, and where no definition exists, there can be no name. Thus, the rule of priority has become the *modus operandi* of nomenclature, and its only possible law.

"Besides this practical necessity, an ethical element enters into the question. The good opinion of the world is as much *property* as money and real estate. In fact, it is money and real estate. It is just that every man should be valued at his true worth, and should have the opportunity of securing a just valuation at the hands of his contemporaries. Mental products are prime elements in this valuation; so are labors undergone, and sacrifices submitted to. Intellectual products

are unquestionably property, and he who attempts to pass off the results of other men's labors as his own is as much a thief as he who picks a pocket, or burglariously enters a house. Now, when nomenclature represents original ideas, the two conditions of equity and convenience are fulfilled.

In fact, to the student, the Greek and Latin languages are like the life preserver to the ship-wrecked mariner. Science is the ocean; too dense to let the unaided mind soar aloft; too deep to reach the bottom; too broad to allow it to swim to the shore. But, with these aids, the navigator may bide his time and float. Like the Aleut in his baydar, he can paddle his own canoe over the highest waves of doubt, and find a light to dispel obscurity. If you question it, ask your pupil what *gynecology* means; inquire of illiterate tyro, the derivation of *leucocythæmia*, which single word defines the disease; and yet such terms crowd the medical literature of the day.

We assume that every student aspires to become a pioneer in the world of truth; a discoverer in the regions of the unknown.

Certainly the claims of society, in this age of progress and reform, for a higher standard of medical education, is neither excessive nor without precedent. Plato, in his "Republic" and "Laws," proposed to intrust all education to the State. He laid great stress on the influence of race and blood. Even in his time he perceived the downward tendency; the "*dulce far niente;*" the disposition to reap without sowing; the desire to evade the hard work of education, and by sham and superficial presumption, seize its social advantages, its honors, and above all, its profits. Plato sought to override the "obstructionists," their ignorance, their recklessness, their avarice, by throwing the entire burden of education upon the State, and thus compel every aspirant to *earn* his laurels. Could only Plato's wisdom be consulted, the State might intrust its treasury to his educational administration; but disbursed under our political deputations and constituencies, the depletion of the treasury would far outstrip the diffusion of learning.

In Germany, in the olden time, when time was thought less of than the excellence of its product in acquired knowledge, the curriculum of general education was seven years. Melancthon, who taught in Wittenberg (1519–29), divided the term into the trivium and the quadrivium. (*See Ency. Britan. Vol.* 7, *p.* 673.) His highly appreciated devotion to the cause of his nation's education, obtained for him the distinguished title of "Preceptor Germaniæ." Allow, then, the education to have begun at nine years of age, at sixteen the quadrivium would terminate, and taking four years for the medical curriculum, and your graduate is only twenty years of age; earlier than that age it would not be wise to grant a diploma.

With the addition of a fair knowledge of mathematics, general literature, and physics, the possessor of these elementary accomplishments may be permitted to matriculate.

But much would we prefer that every applicant to become a physician, and assume its high responsibility before society, should hold the diploma of Master of Arts from some incorporated University, and of course, when possible, the highly endowed and admirably conducted University of California.

In fact, the very unexacting programme we have sketched is only the initiatory requirement of admission to the University. To gain access to this College, there are several preparatory gymnasia of high merit at Oakland, organized to work in harmony with the University. In 1849 no school of high merit, no hospital existed. A private hospital was opened by the Chairman of this committee. Then followed the Peter Smith hospital, which resulted most disastrously to the treasury of our city; since which, in only thirty-two years, have arisen our noble university, with its satellite gymnasia, its departmental colleges, all with their full staff of professors; and one other college, the University of the Pacific. Our city and our State abound with hospitals of the first excellence; some of these are organized to consult the predilections and prejudice of nationalities. Two medical colleges have become firmly established in San Francisco.

The Medical College of the Pacific, founded in 1859, has graduated to 1880 inclusive, 171 students, being 8.14 per annum. The graduation of 1880 was 7 students, of whom 3 were ladies. Its class will number this year about 50 students. This college is the oldest in the State, being the Medical Branch of the University of San Francisco.

The Medical Department of the University of the State of California. This college was founded in 1864, by Dr. H. H. Toland, and was known as the "Toland College" until the munificent donor, Dr. Toland, presented it to the State University in 1875. From this institution 156 graduates have received their diplomas, or 9.75 per annum. Its class this year will number about 70 students. Thus, California to date has graduated 327 physicians, and presents a class of 120 students.

The application of these broad views to the attainment of a higher standard of medical education consists, firstly, in the requirement of *a higher grade of the preliminary general education.* Herein the present report may be abbreviated by reference to a former contribution (see proceedings of this Society, report on Medical Education, 1877). Accordingly, every applicant for admission to an incorporated university or school should be very seriously interrogated upon his antecedent literary attainments. An advanced mental culture should anticipate, in order to pilot and guide the mind through the intricate routes of medicine. To enter therein without it, would be as wise as to plunge into mid-ocean to learn to swim—and, firstly, simple as may appear the idea, it should be ascertained that he is a *good penman*, understands his *grammar* and knows *how to spell.* He should be requested to compose at least two pages, unaided by dictionary or friend. That this is not invidious, is corroborated by the constant lamentations of the editors of medical journals. "Many a gem of purest ray serene" approaches the editor's table in the wretched garb of illegible manuscript; and *there* may slumber many a fine oyster from inability to penetrate its shell.

Our estimable colleague on this Committee, Dr. Benjamin Shurtleff, of Napa, contributes as follows: "I have one suggestion to make, which is to urge the necessity of securing a higher standard of medical education in this country for those upon whom the degree of Doctor of Medicine may be conferred. A great majority of the medical colleges of the United States now require an applicant for a diploma to have studied medicine for a term of three years, and to have attended not less than three courses of lectures in some medical college of good standing. I hope the time will soon come when every medical college in America will adopt and enforce this most reasonable and desirable regulation. No dunce, no matter how long or patiently he may have studied, should ever receive a diploma to practice medicine. Neither the influence of family, friends, money or sympathy should ever be permitted to bestow a diploma upon a person deficient in intellectual vigor and strength.

"It seems to me that the various State Medical Societies, operating through the Medical Society of the United States, can do much toward establishing a uniform high standard of medical education in this country. I trust the State Medical Society of California will continue to urge, until its influence shall procure a broader and more thorough medical education. A reform, to be effective, must not be confined within the narrow limits of a single State. It must embrace the entire Union."

In this excellent suggestion we should not be discouraged by the deplorable retrograde action of the Bellevue Hospital College of New York.

UNIVERSITY GOVERNMENT.

To attain the objects we have just contemplated, *i. e.*, to attract to this Pacific center of learning the greatest possible number of aspirants to medical honors from every country of the world, there should be combined the greatest possible concentration of means to that end. Of the 69 universities or medical colleges in the Union, two flourish in California.

How well they flourish we say not, yet they exist. At present at least one would amply suffice. It is perhaps almost too delicate a question to enter upon, to trench upon the fossilized privileges of early founders of universities, but yet we cannot withhold the idea that it would greatly redound to the advantage and honor of both if the two faculties could be induced to unite and blend their divided strength into one condensed force. Through its great endowment, the University of the State of California, with its several departments, now controls the education of the State. Its large resources enable it to furnish the extensive armamenta and material which the education of to-day demands. The heavy costs, rents, taxes, interest on the value of real property, might be greatly economized by condensation and union.

Unnecessary expansion for personal purpose or pride produces weakness, and the consequent anæmia debilitates both bodies. Their united capital would produce far more extensive "materiel," and provide the mental aliment for four times the number of both their classes. It is well known that the methods of object teaching now in vogue, are far more rapid and impressive on the memory than instruction by written lectures alone. Neither college to-day possesses sufficient resources for this object-teaching in every professorship. By combination, the one supplies what the other has not, and both sets of pupils become the gainers, for the eyes will learn more in an hour, and more agreeably, than the ears in a week. Commendable as it may be, that professors cast all the proceeds of their lectures into the fund for the support of the college, yet student's fees cannot supply the costly requisites of the present education. We see no reason why, in the near future, the University of the State should not make appropriations from its great endowment, to enrich the object materiel of this department; for the culture of man, rather than that of mines and husbandry, should have precedence.

The allotted space does not permit the full discussion of this great question, in the advance of medical education. Evident it is that for California's progress, her grandly endowed

University is ample for the prospective guerdon. It is no restrictive monopoly. It is the child of the people's will, and all competitive opposition is but an "obstruction" to the people's true interest. Let us, as with one perfected reaping machine, a modern "header," control the harvest yet to come, and thus allure the pupils from the universal circumference to our own intellectual center.

In unity there is force.

If our University of the State opens its portals with the munificent hand of *free education*, why should not the vitalizing boon be extended to its departments? If society is exacting a longer and severer curriculum, why should not that society encourage the toiling aspirant by diminishing his expenses? We firmly anticipate that ere long the University of the State will so appropriate that its medical department may rival the most fully equipped institutions of America or Europe. Why, then, should we not invite this concurrence by blending the colleges?

OBJECT TEACHING.

Of all the *object teaching*, the human subject, to display man's organization, is the most important. At leastin California we are ahead of the Maine laws which enact: 1st—That no student shall receive a diploma who has not studied anatomy by actual dissection. 2d—Only criminalswho have been executed by the Sheriff shall be used for dissection; and 3d—The abolishment of capital punishment. In San Francisco, the facilities are very meager; the laws are closely looked to, at least as regards the dead—but unfortunately the scanty provision is divided between two contestants for the coveted booty—neither has enough; therefore another reason to blend, for then both will have it all.

The demand of society for the highest order of surgery should be sustained by more liberality and less superstitious prejudice in the allotment of this mode of *object teaching*. Professors of surgery have great difficulty in obtaining the means to illustrate surgical operations—on the dead subject.

The aversion of the public mind to the idea of dissection, is unjustly intense. Many a person who would not pay a dime for the burial of his friend, would raise a great commotion if he should learn that his body had disappeared from the cemetery. Thousands of men slain in war are deserted and left unheeded on the battle field, and yet it would be regarded as disgraceful to remove any of them to a college for purposes of anatomy. It would seem but just that those who die friendless and unclaimed, should be granted to the college, and their interment at the public expense be spared. In the anatomical hall they would find a mausoleum, and receive more respect than perhaps they enjoyed in their life-time. The alms-house and the morgue might give their tribute, and public institutions should be legally authorized and encouraged to make their contributions without secrecy or disguise, to the great cause of public education. If cremation be encouraged, why should not dissection be promoted?

As a suggestion we will relate a fact: A physician, for several years eminent in San Francisco as a practitioner, a man of wealth and an author of merit (Dr. Winslow), was known by many as a progressive scholar. He died—his will dictated cremation for his body. His demise occurred in Salt Lake City. The executor of the will, who by a happy chance was an expert in mechanic art, went forthwith to that city, obtained from the authorities the proper site and privilege, constructed a most ingenious crematorium, and the will of Dr. Winslow was exactly to the letter, by his faithful executor, fulfilled. The incinerated dust was most reverently disposed of. We however now ask, would not that philosopher have more worthily contributed to science, had he willed his body to the instructive lesson of anatomy, and submitted his well honored bones to the uses of osteology; more eloquent than many an emeritus professor?

One word more and we cease to plead for what we hope is not an Utopia.

In California, the insane enjoy a bonanza. No country in the world presents two more palatial abodes for the insane.

Let the people, in providing so nobly, so pathetically in sympathy with those unfortunates, make one more step to prove their advanced civilization, by appropriating annually a sum of money to maintain in each of those asylums a competent physician and histologist, to elaborate their rich pathological products. It should be done by one entirely devoted to the work, free from the onus of treating the inmates. The work would be, annually to publish reports, if possible through this Society, of the results of the year's experience, and publish an illustrated volume with histological plates, worthy of the issues from the Smithsonian Institution and also of the great Salpetriere of Paris, of the pathology of mental diseases. Why should this immense contribution to medical education be lost? Recommending such an appropriation from the State, we terminate. We thus hope the people may learn to derive an intellectual and Christian revenue from their beautifully humane investments.

REPORT ON DISEASES OF WOMEN AND CHILDREN.

BY CHARLOTTE BROWN, M. D., CHAIRMAN.

MR. PRESIDENT AND MEMBERS OF THE MEDICAL SOCIETY OF THE STATE OF CALIFORNIA: February 3d, 1881, Katie ——, three years old, was admitted to the Pacific Dispensary Hospital, suffering with the rather rare disease, dactylitis (syphilitica). She had been under care for struma, but as the fingers presented marked signs of gangrene, she came to the hospital for amputation of such members as should need it. The hospital staff, on looking the case over, learned that the father, who is a drunkard, suffered before this child's birth from an attack of gonorrhœa, but the mother did not know that he had had any sores or eruption at any time. She has herself a papular eruption—itching, she says—confined to the left thigh, which has affected her since the birth of this child. From birth this child seemed plump and healthy, except that she has never walked; had shown no sign of skin disease, teeth were good, no notching, and had none of the exanthemata. During May and June, 1880, when over two years of age, the child cried and fretted continually, and in July, the mother first noticed a swelling of the second phalanx of the left middle finger. Attributing it to a fall on that hand, she sought no medical advice till the left foot was perceptibly swollen and the finger ulcerated. This was in September, 1880. The child's condition was considered strumous, and she was given syr. iodide of iron and cod-liver oil. This treatment was faithfully carried out by the mother, till as before stated the disease advanced so far that she seemed to need amputation of some of the fingers. Comparing the case with the best authorities, Bæumler in Ziemssen's Cyclopedia, Smith on Syphilitic as

well as Strumous Dactylitis, Taylor on Bone Syphilis in Children, it was decided that the case was one of dactylitis syphilitica—the entire left side sustaining the burden of proof.

Over the interval between the bases of the first and second metacarpal bones of the left hand, there was a soft movable tumor of the size of a hazel nut, presumably a grumous formation in the sheaths of the extensor tendons. The first and second phalanges of the index finger had a uniform circumference of 2 1-16 inches, with an increased protuberance, and threatened ulceration at the proximal end of the first phalanx. The normal circumference obtained from the unswollen index finger of the right hand being 1⅝ inches. The third phalanx is unswollen. The second phalanx of the middle finger has a circumference of 2½ inches, with ulceration over the middle of dorsal surface. This was the first place of ulceration. The third and fourth fingers and thumb present no abnormities. The bases of the left ulna and radius are slightly swollen. The left foot has a circumference of 6⅞ inches; swelling being confined to the first metatarsal bone in its whole length, and to the fifth metatarsal at its base—the integument over both being ulcerated. In none of the authors was there any mention of enlargement of toes—indeed, Taylor thought it never occurred—but this case presents swelling with superficial dorsal ulceration of the first phalanges of the fourth and fifth toes of the left foot. Passing to the right side, we find a swelling over the base of the first metacarpal bone, similar to the one on the left side, but no swelling of the index finger. The second phalanx of the middle finger has measurement and ulceration exactly corresponding to that on the same finger of the left hand. No swelling of ring or little finger or thumb; no swelling of base of radius and ulna.

The circumference of right foot is 5⅞ inches, swelling being confined to the first and second metatarsal bones. No ulceration nor swelling of the toes of right foot. There are no perceptable swellings over the clavicles nor ribs, but the spinous processes of the dorsal vertebræ, from the sixth to the twelfth inclusive, are protuberant, especially the ninth, tenth, eleventh,

and twelfth. There is also a slight curvature from right to left between the sixth and ninth vertebræ inclusive. The child is markedly dish-faced, and suffers from ozæna. In regard to treatment, it was observed that while on anti-strumous regimen, the swellings became purplish, the tension of the integument increased, the edges of the ulcers grew black, and the discharge was of most offensive odor. Immediately the influence of the iodide of potassium in gradually increased doses was felt (three grs. three times a day, increasing every third day as long as the stomach would tolerate and not affect the appetite), with daily inunctions of the blue ointment, the skin became a pinkish color, with less tension, the ulcers lost the gangrenous appearance, the necrosed bone which appeared at the base of the ulcers tended more strongly toward exfoliation, and the whole condition of the child seemed better. I should mention that this child has been a very poor sleeper, moaning and crying with pain at night, while in the day she seemed quite free from suffering. The child has been always well nourished, rosy and plump, but unusually quiet and not inclined to play. Authorities state that after the lapse of six months, no change can be produced in the size of the bones. This case had been suffering over seven months when first brought to the hospital, and treatment so far has produced such good results, that a comparative cure may be reasonably hoped for. The interest of this case was somewhat increased, when on the 28th of March last, another child, a girl fifteen months of age, was admitted, as different as possible in appearance from the one just described. Being much emaciated, quick and nervous in its movements, and having a marked hydrocephalic cry, but presenting a swelling of the first and second metatarsal bones of both feet, with indolent deep ulcers, purplish around the edges on the dorsal surfaces, also deep ulceration over the tuberosity of the right ischium, and two soft tumors as large as walnuts, one over the anterior surface of the left humerus 1½ inches below the shoulder, and one over the external surface of the left fibula 1½ inches above the external malleolus. One of her incisor teeth is notched,

and though seemingly in a famished condition, she could not, for the first few days, swallow anything, clutching at her throat at every attempt to do so, though an examination of the throat revealed nothing. This difficulty has now passed away. The child has been very fretful, crying out frequently, especially at night, as if in pain. On the 14th of this month she suffered from an attack of eclampsia, confined almost entirely to the left side, lasting about eight hours, the last part of the time at longer intervals.

In presenting these cases, I am reminded by a physician of a case of primary lesion, which occurred in a child who had played with another child who was at the time under treatment for a syphiloderma of the face. The second child went through all the characteristic lesions in a mild form under proper medication. The question arises to a thinking mind, whether the physician in charge of the first child was not derelict, when he failed to caution its parents, and so prevent such a distressing result.

From one of our busy physicians comes to me the question whether the so called *remittents* of the children are not really *typhoids*. The persistence of the fever, running 21–28 days, unaffected by quinine or any other medication except as it acts to support the patient, the bronchial difficulty, and the abdominal tenderness, point to typhoid. The bowels are generally constipated, and the little patients recover under sustaining care. Post-mortem examinations are the only way to solve this question, and it is to request careful examinations and reports that I present this subject.

One case more from the Children's Hospital in this city I desire to present to you: Mollie—aged five years. She was admitted to the hospital November, 1879, having been previously under care of the surgeon at Benicia Barracks, and having had blisters and extension for beginning hip-joint disease during some months. From November to March 8th, 1880, her treatment was extension and good nourishment. Fluctuation, however, on deep pressure, convinced us that the time had come for operation, and on the 8th of March, Dr. O.

O. Burgess operated for excision of the head of the femur. The acetabulum was extensively affected, the base of it being nearly perforated, and the rim presenting many sharp points. More than a third of the head of the femur was broken down, and a large pocket of very offensive pus was emptied. I should mention that there had never been an extensive opening in this case, and from the child's healthy appearance we had expected to find comparatively little destruction of the bone. Such was not the case. No case we have had in the hospital presented more extensive disease of the bony parts. Of the result, we wish simply to present you the child. Scarcely a half inch of shortening—the motion of the joint very good, and the child able to walk without crutch or cane. I ought to mention that Sayres' short splint was adjusted six weeks after the operation, and the child placed on crutches, getting on so well that in October she went home, and has only made us occasional visits since.

A report on Diseases of Women this year would not be complete if it failed to mention Chian turpentine. California physicians were not slow to test its efficacy. Details of cases where it was most faithfully tried, have been furnished me by several physicians, and my own experience taken with theirs, leads to the following conclusions:

1. That Chian really is of benefit in quieting the pain—thereby putting off the use of opiates till a late period in the disease. This experience was common to all cases reported.

2. That given in certain stages of the disease it seems to act as a tonic to the system, appetite improving, and color of skin suggesting more red blood corpuscles. Whether this may not be a mental phenomenon, due to the hopefulness of the patient, rather than to any real benefit, must remain for further investigation.

3. It is the last new remedy for a dreadful disease, and as such, without doubt, offers encouragement to those from whom every other hope is gone, and is grasped as a "straw by the drowning." The journals suggest the use of *mastic*, if for any reason patients cannot take the turpentine. Doubt-

less much of the turpentine in use is in reality mastic, as they are both exports from the Island of Chios, and mastic in by far the larger quantity.

The recommendation of Dr. Hiram Corson, to use ice locally in mammitis, is a new departure from routine practice, but his words of praise are so high in its limiting suppuration, that I should be glad if we might hear results next year from some who have tried it on this coast. He applies it in a bladder, with a little water to make a soft bed for the gland, and suggests that it be used in all stages of the disease up to lancing.

Would it not be well if our Society should, as a committee of the whole, report each year on the subject of the treatment of poison oak, and invite investigations as to the eradication of the plant from our soil. A few months since it was my intention to make this the subject of my paper, and to that end I conversed with many of the laity as well as the profession, on the subject, learning that there are recommended alkaline baths, when one has been exposed, as a means of preventing eruption. External applications of hot milk—alcohol—a sat. sol. of salicylic acid—fl. ext. grindelia robusta—a solution of ox gall in brandy, lead-water and laudanum—carron oil—solution of bismuth, vaseline, powders of camphor, starch, bismuth and zinc oxide. And lastly, one gentleman of extended scientific knowledge said, after trying everything, he now carried with him when liable to be poisoned a bottle of Trapper's oil, and by light applications, was relieved better than by any other means. Eating the leaves is said to be a preventive, but until this remedy is well reported upon by physicians we shall hardly dare to feed it to delicate women and children, to prevent even their dreaded sufferings. During a late visit to Southern California, a fine farm as to location, water, etc., was pointed out whence the owner after a three years' fight, was driven away by poison oak. Does it not seem a question of magnitude sufficient for your careful thought and investigation?

The limits of this paper will not be overreached if reference is made to the sanitary condition of this city, especially during the latter months of 1880. Sufficient rain to thoroughly flush the sewers did not fall till the middle of December. The first rains, which were unusually late, seemed to drive out the gases from the sewers even more than ever. The effect of this impurity was seen among parturient women to a marked degree. Almost every case had complications of more or less severity—no case recovering as usual. Throat troubles, too, were epidemic, and pneumonia unusually common and severe. Defective sewerage is a much abused subject, and it is with real satisfaction that we note the awakening of our New York City friends to the subject. Large public meetings have been held, at which leading physicians have been prominent workers. Committees and boards, in years past, have spent freely public money, but have accomplished little. Now that the people have roused themselves, we may expect to see honest work with good results. Just how far the medical profession is to blame for this lethargy in so vital a question is of serious import. We relieve the patient from the effects of mal-aria—the Italian word expresses it well—accept his gratitude and pay for our visits, but does our obligation end here? We know that every bath-tub communicating directly with the sewer, every stationary wash-bowl, sink or tub, which has no trap, or a poor apology for one, every wooden box in use for a waste-pipe from the house, decaying as they do almost as soon as they are used—I say, we know each of these are factors which left as they are will soon cause more visits from the doctor. We recognized, as we entered the house, that slight sickish odor. Now, suppose as true sanitarians we go about the house and point out to the now recovered patient the *cause* of the sickness, and set forth to him how, if not repaired, the illness will return. What answer do we hear: "I know it, but cannot afford to build over the house of another, and my complaints avail nothing. The landlord says he has put as much expense on these pipes as he intends to, and we cannot better ourselves by moving—the next house will be as

bad." The mushroom boarding houses of San Francisco are filled with imperfect plumbing and wooden waste-pipes. So, too, of the hundreds of detached houses which have been sold on the installment plan the past few years. Wooden waste-pipes are the rule, and frequently yard closets which have no connection with the sewer pipes. And what are the results? The boarding houses have sickness all the time. It amounts to suicide to live in some of them; and how of the dwelling houses? Count the fatality of children's diseases in them. I recall now one family where two lovely children died of diphtheria, where, a week or so after the death of the last, a broken sewer under the family living room was discovered and the ground soaking with the sewage. What a price to pay for cheap work!

Then, if this is the state of things among the better houses, what are we to expect in the cheap flats and tenement houses? The great sewers which drain Mission creek are valuable, and the city in that district is freer from noxious gases, but of what avail are they if nearly every house contains the evils of which I complain, and I assure you, your personal inspection of the first half finished block of cheap houses you drive by will teach you that I have not overdrawn the picture. Contractors will tell you the sandy soil here does not hold fluid, and the wooden boxes are not unhealthy—they are easily replaced, and are inexpensive. But inspect this matter for yourselves and you will not believe their words.

Now, how does this concern us in a report on diseases of women and children. A late journal (*Philadelphia Med. and Surg. Reporter*, April 2d, 1881), says in an editorial, "probably ninety per cent at least of all the cases which seek aid of the gynæcologist trace their maladies to pregnancy and parturition." I ask you to think over the life indoors of women in our cities—kitchen, bathroom and bedroom, reeking with sewer-gas, scarcely perceptible, perhaps, but all the more dangerous on that account, and know that the women and often the children live night and day in that atmosphere. The average woman does not give herself over half an hour a day out of doors

taking the year round. Judge, now, whether back of the pregnancy and parturition there is not a cause for her difficult labor and poor convalescence in the vitiated condition of her system. Every gynæcologist sees cases of uterine diseases where he recommends treatment for the enlargement, catarrh, inflamed endometrium with the attendant aches and pains, which, after a few months change of residence, he is astonished to find are cured without a single local application; while on the other hand cases which cannot or will not surround themselves with proper hygienic measures resist treatment, even though we repair lacerations, remove as far as we can, each and every symptom, and discouraged at last we give up the case to learn afterwards that a few weeks residence in Cloverdale, breathing Heaven's pure air—but nominally in care of a "spiritual quack," and the cure is complete. I would not have any one believe that here lies the root of all ills. I only think here is an important cause, especially in large cities and towns, and that this subject demands active interference here as well as in New York City. Time has proved that it is a subject not understood by Supervisors, and now before hundreds more of lives are sacrificed, let us take it into our own hands and never give up till the State and City Boards of Health are made inspectors of every new building, and indeed of every old one, obliging each owner under the heaviest possible penalties, to make use of all known sanitary improvements and laws in regard to sewerage. Compel the city to give up building wooden mains in streets; in short, make it a criminal act to endanger human life in these ways. The cost of such inspection will not be great comparatively, but it will increase the labors of the health office at the expense of the undertakers. The first steps in such a revolution must come from the medical profession.

SUPPLEMENTAL REPORT ON DISEASES OF WOMEN AND CHILDREN.

BY C. A. BUCKEL, M. D.

DR. CHARLOTTE BROWN, CHAIRMAN OF COMMITTEE ON DISEASES OF WOMEN AND CHILDREN: I would like to call your attention to the subject of food for infants and children. Not because I have information to impart, but because I feel the need of more accurate and extensive knowledge on this most important subject. That the general public need instruction is plainly evident to any one who considers the piles of peanut shells, orange peels, candy wrappers, etc., that litter every place of public resort—even the seats in our cars and railway stations.

That physicians themselves have still much to learn is painfully apparent to one who conscientiously tries to secure all that is yet known on this subject. The exact physiological effects of some of the most common edibles still remain to be demonstrated, though we may know to a grain all their chemical constituents. Even many of the chemical analyses are made of the raw material, and who is competent to say what are the changes produced by our Irish and Chinese cooks, under the direction of our American housewives, who as school girls lived largely on cakes, candies and ice cream?

One of the most common troubles in this vicinity is constipation. It is not rare to find an infant who has never had a natural movement of the bowels. How shall we manage pregnant women and mothers to prevent this condition. Obstinate eruptions of the skin are not infrequent here, in children whose parents are apparently free from such complaints. Is it an error in diet that causes this affliction? Enu-

resis and other troubles of the urinary organs are common in children, and exceedingly obstinate, and here, too, would seem to be the result of improper food or drinks, in a measure, though other causes ought undoubtedly to be taken into consideration. It would seem that during all the ages since children came into the world, enough knowledge should have been accumulated to direct the first year of their lives at least. Yet I have searched authorities in vain to find what is the best milk-producing diet for mothers. Still more difficult is it to find what food will produce the best quality of milk. The food that makes the French peasant an acceptable nurse would be rejected with disgust by the average American mother. It would seem even that California people need a diet different from their friends in the Eastern States. Children here often have remarkably small appetites. It is only by constant urging that they can be induced to eat ordinary food. Is not this an indication that we need a change in our dinner-tables? Is it not reasonable to suppose that where the skin and other glands are less active in carrying off waste products, the stomach and digestive system must also have less work to do? Still we load our tables with the heavy food used in colder climates, and often give the children stimulants to force them to eat what their natural appetites reject.

Would it not be a good plan for the State Medical Society to appoint a committee to ascertain the kinds of food best adapted to this climate, and then take measures to acquaint the people generally with the knowledge how to obtain and prepare it. Nature has most abundantly scattered springs of a great variety of mineral waters throughout the State; may we not find that these springs possibly furnish just the elements needed to keep up the vigor and freshness of our rapidly wasting tissues? I see no reason why California mineral springs should not possess equal virtues with the most noted resorts of the Old World. It is certainly worthy of the attention of the profession in the State, to test their values and make them known to the public at home, if modesty forbids speaking of them to the world at large.

REPORT ON MEDICAL LEGISLATION.

BY IRA E. OATMAN, M. D., CHAIRMAN.

MR. PRESIDENT AND MEMBERS OF THE MEDICAL SOCIETY OF THE STATE OF CALIFORNIA: Instructions by resolution, make it the duty of your Special Committee "by all lawful and honorable means, to promote the passage of acts of legislation approved and recommended by this Society, with discretionary powers in emergencies." In response, your Committee has the honor to report: That, as no change in or substitute for the existing law had been approved and recommended by this Society, your Committee did not submit or recommend any such bill for passage at the last regular session of the Legislature, but earnestly endeavored to *defeat* any such legislation, and would recommend that the Society, at this session, take such action as will promote the best interests of all concerned. An able bill originated in the State Board of Examiners, which was approved and its passage recommended by the San Francisco Medical Society. But it was developed early in the session, that formidable efforts would be made to pass Senator Hudson's bill—a bill subversive of fundamental principles involved; whilst other bills, more or less objectionable, were presented or foreshadowed. After deliberate consultation with the Examining Board, the San Francisco Medical Society, the Sacramento Society for Medical Improvement, and other physicians, with the hearty co-operation of the medical gentlemen in both houses of the Legislature, it was decided to offer no bill at the last session; but to *defeat*, if possible, all efforts to repeal or amend the existing law, or substitute therefor. I need not say that Senators Lampson, Rowell and Pardee, and Representatives Crumpton,

Mathews and May, of the medical profession, aided by influential members of both houses, are entitled to the *honor* of defeating *all* the bills acted upon, designed to regulate the practice of medicine and surgery; or to repeal or influence in any degree the existing law. The Chairman of your Committee was aided very materially in securing the above action by a committee sent from the San Francisco Medical Society, consisting of Doctors Henry Gibbons, Sr., and T. B. Dewitt. The former visited the Capital more than once during the session, and rendered signal service.

To place before this Society and the profession, upon the publication of this report (if it be deemed worthy of publication), I propose to give a very brief abstract of some of the distinctive principles contained in the bills offered during the last session of the Legislature; and also contained in the laws of some of the States. I will avoid the detail, and give only a few principles which are not contained in the medical law of California, for you all know the full text of that law. But first, let me allude to the bill sent by the San Francisco Medical Society, which was not offered in either house. It requires the Governor of the State to appoint the Examining Board. All applicants for license shall be graduates in medicine, and shall be examined. Meetings shall be held quarterly, with all special meetings in San Francisco. Members of the Board shall be paid eight dollars a day for actual service, and the Secretary six hundred dollars per annum, out of the State Treasury. Applicants shall pay thirty dollars into the State Treasury. Penalties shall be increased at every prosecution of the same person, to the fourth and subsequent offenses, which last shall be five hundred dollars fine and three hundred and sixty-five days imprisonment. District and prosecuting attorneys shall prosecute, etc.

IN THE STATE SENATE.

Senator Hudson's Bill, No. 16: Every applicant for license shall verify his diploma before "the Clerk of any Superior Court." Any person may practice medicine without a license

for two years as a "student," who has attended one course of lectures or more.

Senator Conger's Bill, No. 240, is very elaborate. It provides for the establishment of a *Board of Health* in San Francisco, with all the details, etc.

Senator George's Bill, No. 263: The Governor shall appoint an Examining Board of seven—three "regulars," two eclectics, and two homœopaths, for four years. Two shall reside in Sacramento. The Board shall meet in the State Capital, and may issue licenses to non-graduates. Fees, twenty-five dollars.

Senator Chase's Bill, No. 295, is elaborate with minute details. Boards of Health in cities and counties, of five members, shall be appointed by the Mayor or chief executive officer. Three shall be physicians, etc., either allopathic, eclectic or homœopathic—one a sanitary engineer and one a private citizen. The bill treats of and provides for hospitals, almshouse, quarantine, etc., with all their officers and employes.

IN THE HOUSE OF REPRESENTATIVES.

Assemblyman Pinder, No. 112, makes it a misdemeanor for apothecaries to give, or physicians to receive, a commission on prescriptions.

Assemblyman Del Valle, No. 213, provides for calling medical experts, by agreement, or by the Court, to be paid an amount at the discretion of the Court.

Assemblyman Howard, No. 304: Diplomas, etc., to be verified before County Clerks; applicants liable to prosecution for false representations.

Assemblyman Baker, No. 360: Itinerant venders, etc., shall pay five dollars per month.

In the New York law, practitioners shall verify their claims and credentials before the County Clerk, and shall be amenable for fraudulent representations, etc. The faculty of any medical school in the State can indorse diplomas from other States, which makes them serve as licenses.

In Illinois, the law is similar to the law in California, excepting that the State Board of Health is the Examining Board.

In New Hampshire, every Medical Society shall have a Board of Censors, with authority to grant licenses on verified diplomas, or upon examinations. Dental Societies the same.

Vermont's laws are similar to those of New Hampshire.

In Pennsylvania, verified diplomas entitle to license. The "Courts of Common Pleas" shall appoint committees, who shall swear they will not be bribed, and who shall grant licenses, recognizing different "schools" of practice; one course of lectures and five years of practice, or ten years of practice, entitle to license; with liability to five hundred dollars fine for violation of law, with no power to collect fees, and if paid, shall be refunded.

In Texas, Judges of the District Courts shall appoint the Examining Boards in every district, who shall examine all applicants in anatomy, physiology, pathological anatomy and pathology, surgery, obstetrics and chemistry. But no preference given to any "school" of medicine.

All the State laws have not been examined, but these abstracts, taken in connection with the law of California, are given to show how wide a range has been taken in medical legislation, and efforts thereat.

It is obvious, that the fertility of genius in this Society is more than equal to the great importance of the subject. It is devoutly hoped that the Society will take such action as will result in the adoption of a bill at its next session, that will supersede the present law, and be satisfactory to both the public and the profession. If the Society will appoint a committee to report a bill for adoption at the next annual meeting, and will invite all its members to duly consider the whole subject in the interim, and to report their wishes to the committee in writing, the committee might be able to draft a bill acceptable to the whole Society. Published in the annual "Transactions" for 1882, the bill would reach the medical

men in all parts of the State. With their hearty approval, it would exert an influence upon the public mind, and upon the members of both houses of the Legislature, all of whom are to be elected in 1882, that would be irresistible. It is confidently believed that such procedure will result in the best legislation possible under existing circumstances.

The results herein contemplated would put at rest for the time being the whole subject of medical legislation; and until the rapid progress of advancing years, in the near future, will require uniform attainments of all applicants for license to practice the profession.

With no intent to forestall the judgment or action of this Society, I beg to give a brief summary of the more important principles required in a medical law for California: The law should be brief, and in language so plain and forcible as to admit of no misconstruction. For the present, it should admit all graduates in good standing, from reputable, chartered colleges, authorized to confer the degrees of Doctor of Medicine. It should provide for examining board or boards, appointed by the State Society or Societies, or the Governor of the State—the former preferred. Identity of person and genuineness of diploma should be verified by oath or affirmation, and proof, if required, with punishment for false testimony. All licenses should be of record, in the county where the holder resides. All persons applying for a license shall pay a fee. Applicants may be rejected, or licenses revoked, on account of unprofessional conduct. The right of appeal to the State Society should be sacred. Practicing medicine and surgery should be defined. Itinerant venders and practitioners should be taxed. Severe penalty for non-compliance with the law should be enforced. Compensation to the Examining Board, or its Secretary, cannot be drawn from the State Treasury, unless such Board or Boards be "under the exclusive management and control of the State, as a State institution." (See Art. IV, Sec. 22, of the State Constitution.) To secure such aid, the State must have the power to appoint the Board. Without a license to practice, no fees should be collectible, and if paid,

should be recoverable by law. Medical experts should be paid a fee in trials for murder and other cases.

In the past year, the Courts in San Francisco and Sacramento have ruled out testimony as to the qualifications and skill of the party practicing, and admitted only that which related to the charge of practicing without license; and when tried by the Court, the charge has been invariably sustained. But when tried before a jury, the jury, without "the fear of God before its eyes," has uniformly found the accused "not guilty"—notwithstanding the fact that proof was positive that the accused had practiced without license, and the plain instructions of the Court that the evidence was ample under the law for conviction. This places the law on a firm constitutional basis, as the decisions of the Courts have been sustained by the Supreme Court of the State. In one or more instances, two prosecutions have been sustained by the Court against the same individual. It only remains to make the law uniformly effective in all cases amenable thereto, that juries be duly impressed with the sacredness of the oath taken, and with the fact that they are honorably and lawfully bound to decide the cases according to the "law and evidence," and the instructions of the Court. This is only a matter of time; for the immutable principles of science and natural law cannot fail to be better understood, and that speedily. The time cannot be far distant, with an united profession as its votaries, when the protection of the sanitary interests of the community by law, against unnecessarily protracted illness and avoidable death, in the care of irregular and fraudulent practitioners, will be deemed of equal importance, and placed in the same category with trespass and fraud, robbery and murder!

As well might the Legislature repeal all law for the punishment of the crimes just named, as to repeal the law regulating the practice of medicine and surgery. The restraint is equally demanded in both cases for the protection of the unwary, and a too confiding public, whilst the deaths from quackery in its various forms far outnumber all the deaths

from legal *murder*, or that would follow the repeal of law for the punishment thereof.

In war, should a loyal army have taken all the important posts, and occupy securely the disputed territory, if the scouts fail to capture every place reconnoitered, and be driven back a little way before a few dingy banners, would generalship, patriotism, the spirit of the age, allow the loyal army to abandon all the advance ground held, with every important post, and let the relentless enemy overrun and devastate the entire dominion? The idea is too preposterous to admit of consideration. Or, should the just laws for the punishment of perjury and murder be repealed, because they are not always properly enforced? The application of these illustrations to medical law for California, is sufficiently obvious to enforce the analogy, and to demonstrate the fact, that the dignity, honor, and responsibility of the profession we represent, forbid that we recede from the advance position we occupy, and to enforce the necessity of revising and perfecting the law we have, until it becomes a permanent statute in our jurisprudence. The chief objection to the law, that it legalized and gave prominence to irregular practitioners, etc., has been logically met by abler pens than mine. The lawful rights are *not increased* by the law, whilst, if any change, they are made more distinctly *irregular*. This invites investigation as to the difference between the scientific physician and the irregular; and will gradually acquaint the public with the facts, that every demonstrable principle pertaining to the medical sciences which can be utilized in the profession, belongs to us; whilst none of the distinctive principles of the irregulars have ever been adopted and taught in any of the principal universities. If true and demonstrable, they would be eagerly sought, taught and published; and would soon become established beyond controversy, in the great world of science.

REPORT ON THE RELATIONS OF THE MARINE HOSPITAL SERVICE OF THE U. S. TO COMMERCE, THE PUBLIC, AND THE MEDICAL PROFESSION.

BY C. N. ELLINWOOD, M. D., CHAIRMAN.

MR. PRESIDENT AND MEMBERS OF THE MEDICAL SOCIETY OF THE STATE OF CALIFORNIA: Your Committee appointed at the meeting of 1880 to report on the "Character, Objects, and Utility of the United States Marine Hospital Service, including its relations to commerce, to the medical profession and to the public," would respectfully offer the following facts for your consideration:

FOR WHOM ARE MARINE HOSPITALS MAINTAINED?

We find a very general misapprehension prevails as to who are the patients in Marine Hospitals, the inference being that a Government hospital is kept for those in the service of the Government, such as U. S. Marines, while the fact is that our Marine Hospitals are kept by the Government for those not in its service—employes of individuals and corporations. They are captains, mates, pursers, engineers, sailors, stokers, porters, waiters, chambermaids, cabin boys, coal heavers, roustabouts, lightermen, and all other persons employed in any way upon ocean and inland vessels, the ferry-boats in our bays, the flat-boats on our rivers, and the steamers on the ocean. Recently published reports of the service estimate the number of such persons provided for by the Government in its Marine Hospitals at 170,000, a number five times greater than our army and navy combined.

Your Committee find that the crippled and infirm, or permanently disabled, are not provided for by this service. If such become impecunious, they have to depend on the local charities, as the Marine Hospital service only contemplates temporary relief to those who within a reasonable time may be able to return to their work.

The Marine Hospital system furnishes relief at designated seaports and river stations inland, and only at such stations. "A sick seaman in the course of the voyage is a charge on the ship by mercantile law, and in this charge are included not only medicines and medical advice, but nursing, diet and lodging, if the seaman is carried ashore. Seamen, therefore, taken sick or disabled in the course of their voyage or engagement, shall not be allowed the benefits of this fund, except at those ports where provision has been made for their care. At all other ports, if relief is demanded by considerations of humanity, it is to be furnished by the collector at the expense of the ship to which they belong."—*Revised Regulations M. H. Service.*

Nor are American seamen in foreign ports, sick and in distress, provided for by this service. Such provision is made by our consular service under the State Department at Washington.

HOW THE MARINE HOSPITAL SYSTEM IS SUPPORTED.

1st. By a *per capita* tax of forty cents per month upon those who are entitled to relief. This tax is deducted from the men's wages by their employers and paid by them to the Government for the Marine Hospital Fund.

2d. By appropriations by Congress from the General Fund of the Government to meet any deficiencies in the fund, and for buildings, sites, improvements, etc.

The official reports show that from 1860 to 1878, the tax collected from seamen amounted to $4,368,757, and the appropriations by Congress for the same period $3,061,303; and if we add to the latter the other expenses of the service, paid by the Government and not charged to the account of that service, such

as repairs to hospital buildings, fuel, and lights, together with the expense of collecting and disbursing the fund, it will show that not one-half the whole expense of the Marine Hospital establishment is paid by the tax; or, in other words, the Government by this tax takes forty cents per month from the wages of seamen, and pays out eighty cents for every forty cents received, to maintain the Marine Hospital system.

HOW THE SERVICE IS CONDUCTED.

The Secretary of the Treasury is the head of the Marine Hospital service, making appointments and regulations for his subordinates, who collect the tax and conduct the hospital. A supervising surgeon is authorized by law, who is the managing man, under the Secretary of the Treasury, of hospital relief.

Applicants for relief must first satisfy the Collector of the Port that they have paid their tax for the three months prior to their application for relief; without such evidence they are not seamen according to law, and have no claim upon the Marine Hospital Fund.

No matter if the applicant has been a seaman, and paid his tax for a life-time, and finally comes to need medical relief, his application to the Marine Hospital is in vain unless made within thirty days after paying his tax. This provision cuts off all relief to the aged and all those disabled and worn out in seafaring pursuits.

THE MARINE HOSPITAL SERVICE SHOULD BE ABOLISHED.

Your Committee would recommend that this Society, with the co-operation of other medical societies throughout the country, urge upon Congress the discontinuance of the Marine Hospital Service, for the following reasons:

1st. The *per capita* tax levied upon seamen is opposed to the letter and spirit of the Constitution of the United States, which in terms forbids the levy of such a tax. (*See Art. IX.*) It says: "No capitation or other direct tax shall be laid unless

in proportion to the census." This is the only capitation tax levied by Congress, and it is held as of doubtful legality by the Government itself, but the question has never been raised on account of the charitable object in view, and "the questionable legality of the taxation is laid aside by common consent," says a Congressional committee in 1849.

2d. As a public charity, which in some vague way it is claimed by the promoters of the service to be, and also "*to encourage fit persons to become seamen*," it is not a necessity, nor does it in any way accomplish such purposes.

Physicians are proverbially in sympathy with suffering humanity and all charities for its relief, and especially medical charities, and contribute for their maintenance as liberally as any others in the commonwealth. But we cannot approve the maintenance by the Government of a hospital establishment for the convenience of 170,000 persons who are as well paid for their labor and who are as well able to provide for themselves as any other class of laborers. Their employers have the same interest in their employes.

During that period of their lives when the service provides for them, there are not more impecunious persons among them, than among other classes of their intelligence. It is true, that as they become aged and decrepid, and no longer able to follow their vocation, and so come to want, they are then left by the Government to the care of our local charities. In effect, the service provides for them a medical charity when they are well to do and don't need it; but when they are unable to work longer, and become destitute, they are left to our almshouses and private charities.

The service as a charity is opposed to the best interests of the sailor, in this, that it offers an encouragement to debauch and vice. It practically says to these "*wards of the Government*" who are so provided for, indulge your base appetites, dissipate your earnings in brothels, upon harlots and drink, if you like, and the United States Government will cure you of the consequences, free of charge. The effect of this license is

shown by a glance at the operations of the service. A large majority of the cases treated are venereal diseases and other consequences of debauch on shore.

A somewhat careful study of the statistics of the service enables your Committee to estimate the number of cases originating on board at twenty per cent, while the cases originating on shore are eighty per cent of all relief furnished.

We believe that the service does much to encourage that abandon for which this class of persons is notorious, and to perpetuate that nuisance in the community known as the sailor brothel.

It is inferred by the appropriations of Congress that the sailor is a ward of the Government, and by recent legislation the sailor is defined to be cooks, barbers, porters, waiters, chambermaids, and all other landsmen who may be, for the time, employed on board some floating craft.

To make these people wards, and to treat them as children requiring protection, as incapable of taking care of themselves, has the effect of making them a servile class—degrading the man to a condition of slavery. A remarkable illustration of this servile character is seen in the fact that while the tax is collected from him, deducted from his wages without his consent and against his will, yet no sailor has ever had the courage to test its legality.

As a charity, then, your Committee deem this service a mistake and a failure. We cannot imagine a greater travesty than is presented by this service, which sends medical officers from Washington armed with a commission from the Government, and a copy of the regulations, to the headwaters of the Missouri and to Puget Sound, to cure steamboat lackeys of vile disorders, in the name of charity and under the pretext of encouraging fit persons to become seamen. "What shadows we pursue!"

Such is the Marine Hospital system eulogized as a charity. It may have benefits, but the greatest of these is *not* charity.

Other trades and vocations of men—miners, farmers, railroaders, and canal diggers—might, with equal propriety, be included in such a Government charity.

3d. The service should be discontinued, because it furnishes relief only at such times and at such places when and where the seaman is able to provide for his own relief, at a less cost to himself and with no cost to the Government. We find that wherever Marine Hospitals are located or medical officers stationed, there are also other hospitals and other physicians quite as competent to give relief to suffering seamen, as is provided for them by the service, and at less cost to them.

The Government is in this matter usurping the functions and prerogatives of the medical profession, and of local hospitals, without any necessity or good reason for it.

The average cost to the Government for every man treated is $16.18, and this includes a large proportion of cases of trivial disease, not admitted to the hospital, and supplied only with an astringent wash or a dose of salts. Your Committee believes that for one-half the sum paid by the seamen toward this expense, that equally as much relief could be had, without the Marine Hospital Bureau, which would seem to be maintained in the interests of a corps of graded medical officers, assistant surgeons, passed assistants, and surgeons, who are *permanently employed*, and not in the interest of seamen who are *temporarily relieved.*

4th. We think the system should be abolished, because of the unjust tax which it imposes upon commerce and the country, now universally conceded to be overtaxed.

Great Britain, the greatest maritime nation the world has ever known—a country made great by her ocean commerce with all the countries, and by means of which she has "dotted the surface of the globe with her possessions"—long since abolished her Marine Hospital system, and relieved her tonnage from the imposition of such a tax. She leaves the sailor to the care of himself while in port, like any other citizen. If accident or disease happen to him while in the service of the

HAWAIIAN LEPROSY.

BY A. W. SAXE, M. D., OF SANTA CLARA.

Leprosy—Elephantiasis Græcorum—of the Hawaiian Islands, and its Relation to the Pacific Coast of America.

The United States of America, when limited to the thirteen original States, and even after its area had extended to the Rocky Mountains on the west and Mexico on the south, gave little attention to the possibilities of the introduction of those more loathsome forms of disease, which have been supposed to originate and perpetuate themselves only in the tropics. However, as the vast territories west of these mountains became peopled by the busy Caucasian races, and States organized, embracing an extent of one thousand miles of the Pacific Coast, with the immigration to its shores of the population of Russia, China, Japan, India and Oceanica, on the west, and Southern, Central and Northern Europe and Africa on the east—with this cosmopolitan and polyglot population, diseases were introduced which in the early history of the nation were unknown. Among these introduced diseases, elephantiasis græcorum, or leprosy, is only recently arousing the attention and solicitude of thoughtful American physicians.

The fact of its existence in the Hawaiian Islands appears to have been no cause of alarm, and even when Chinese lepers appeared in San Francisco and elsewhere in California, and in Minnesota, still little attention was paid to it as an element of danger among the American people. But recently in New York, the medical profession, as guardians of the public health, have organized a commission to inquire into the alleged prevalence of leprosy in the United States.

At a meeting of the New York Academy of Medicine, January 20th, 1881, Dr. Fordyce Barker, M. D., L. L. D., in the chair, the paper of the evening was read by Dr. H. G. Piffard, on the subject of Leprosy. Dr. P., after giving a brief history of the disease, treated of its contagiousness, prophylaxis and treatment—after which, two cases were presented to the Society. One a German, aged sixty-eight years, who contracted the disease in Mexico eighteen years ago, and came to this country to live five years before the disease appeared. The second, a young man who came from Bermuda, three years ago; disease developed in this country. Dr. Bulkley had treated nine cases of leprosy in its different forms. He had two patients in his personal care, both natives of America, both live in New York. Neither had ever been five hundred miles from that city, nor had any hereditary history of leprosy. Dr. Piffard spoke of the danger to which the country was exposed on both sides; as the disease might be imported from the West Indies, Mexico, China, and the Sandwich Islands. The discussion being closed, Dr. Sturgis offered the following resolution, which was adopted: "Resolved, That a committee be appointed by the President, to investigate the extent to which the disease prevails in this country." The President appointed Drs. H. G. Piffard, F. R. Sturgis and G. H. Fox.

By leave of the members of this Society, I propose to give a brief outline of the disease as it exists at the present time in the Hawaiian Islands, its introduction, effects, local legislation for its isolation, question of contagiousness, and some physiological facts which came under my observation while on a visit to the leper settlement on the island of Molokai, in February, 1880.

PRODROMATA.

Lassitude, wandering pains in the joints and muscles of the limbs, alternating chills and fever of low grade, loss of appetite, headache, with irregular action of the bowels. This condition may continue, with intermissions, for some months, when

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an erythematous eruption or brown maculæ appear on the back, nates, shoulders and breast, having much the appearance of syphiloderma erythematosum. The most careful observers among the Hawaiian missionaries report, as one of the earliest symptoms of the disease, a huskiness of the voice—quickly discernible among the natives, as the voice is generally characterized by a clear, tracheal and laryngeal staccato utterance. Also, plantar pedis ulcers, in which the soles of the feet becoming thickened, crack, and dry indolent ulceration follows. Also, hypertrophy of the posterior cervical cutaneous and subcutaneous tissues.

The foregoing prodromata may appear and disappear at greater or less intervals, for one or more years, during which time is developing a characteristic cutaneous neoplasm, resembling the granulation tissue of lupus and syphilis invading the fibrous and nervous tissues. The production of this tissue is the result of some change in the general nutrition, and produces anesthesia and paralysis in proportion to the extent of its invasion.

There are two recognized forms of the disease—the *tubercular* and the *anesthetic*, or paralytic. Other names descriptive of characteristics of the diseases have been given, but they are only applicable to the different stages of one or the other of the above recognized forms. Both the tubercular and the anesthetic may be associated, or they may be distinct. The chief features as regards the surface are, discoloration, deposit and anesthesia.

The *tubercular* form is characterized by tubercular elevations, appearing on the brown discolored patches, chiefly at first about the brow, cheeks, nose, ears and neck. The face has a swollen, ruddy appearance, ears much enlarged and red. The superciliary hairs drop out, and give to the face a peculiarly naked appearance; simultaneously a loss of sensation occurs, in the cutaneous distribution of the ulna nerves of the arms and the tibials of the legs, and patients may be unconsciously seriously scalded or burned on these anesthetic surfaces. The tubercles are in patches on the body, with

intervening areas of sound tissue. They are most conspicuous on the lax tissues of the joints and folds of the limbs. On the face they run together, and present a repulsive appearance. They vary in size from a pea to a half walnut, and generally soften at the apex after a year or two, discharging an offensive, tenacious fluid, which forms crusts of dark brown color on the tubercular surface. This tubercular deposit may be absorbed, leaving discolored spots, but generally reappears after a short interval with appearance of ulcers, invading the subcutaneous tissues, but rarely the bones. The skin is denuded of hair, eyebrows and eyelashes drop out, as well as the beard. Ulceration of the conjunctiva and cornea, paralysis of the orbicularis, with ectropion. It invades the mucous membranes of nose, mouth, fauces and larynx, producing a huskiness of the voice and total loss of phonation; nasal septum absorbed; nose settles down, producing great facial distortion.

ANESTHETIC LEPROSY.

In the anesthetic form, hyperesthesia of the most distressing character preceeds the anesthesia, cutaneous changes, often trivial, seldom more than a dry, corrugated, scaly appearance, or there may be many of the characteristics of the tubercular variety associated with it; superficial ulcers discharging their pus, and healing with smooth cicatrices; hair removed by the primary ulcers, often returns but is white; later, the skin becomes dry and shriveled over the entire body. The ulcerative process is often confined to the fingers and toes, and generally expends its force on these parts; the phalanges drop off one by one, or are absorbed without external lesion. The face is often horribly distorted by paralysis of the facial nerves of one side. Vision and voice are not as soon affected as in the tubercular form. Patients suffer comparatively little, owing to the anesthesia, enduring burns, scalds, and loss of parts without pain. Among distortions may be mentioned the birds-claw distortion of the hands, from contraction of the flexor tendons and muscles, absorption of intermediate pha-

langes, deposits in the contracted tissues, fixing the fingers and toes in all conceivable positions, complete absorption of the smaller bones of the hand or foot, leaving only the palmar or plantar surfaces.

Leprosy is rarely developed before the age of ten years, generally not until after puberty—after which an average of ten years elapses before the disease is fully developed. The longevity of anesthetic cases is remarkable, the disease often appearing to have very little effect in shortening the life of the patient. The tubercular form, however, has a very rapidly fatal effect, resulting in marasmus, diarrhœa and dysentery, acute or chronic.

All lepers are highly susceptible to cold, and suffer from pulmonic affections, erysipelas, albuminuria, nephritis and ascites. And all require the most nutritious food. Average duration of distinct tubercular leprosy, eight years; anesthetic, eighteen years.

RELATION OF LEPROSY TO SYPHILIS.

There is no doubt that secondary syphilis prepares the tissues of the human body to receive the specific poison of leprosy, by producing the low vitality always accompanying the syphilitic cachexy, but it cannot be said to have any other relation to the disease.

ÆTIOLOGY AND PROPAGATION.

To determine the specific cause or poison in any disease is difficult, and in leprosy, has hitherto baffled all research. In sea-girt communities, damp huts, stale fish, salt meats, rancid oils, etc., are mentioned as causes of leprosy. In interior, or continental communities, imperfect or injured grain, or that grown on uncultivated soil, are believed to be causes. In England it has been charged to the use of salted meats, straw bedding, insufficient food and clothing, filthy habits, neglect of bathing, and exposure to unfavorable influences of climate and weather. Paludal or malarial poison is charged with causing the disease, on account of the intermittent febrile

attacks which precede it. The Norwegian physicians, Drs. Danielson and Boeck, find a sufficient cause for the disease in Norway, in the use of rotten pickled herring. And by a remarkable coincidence, in the early part of the century, the herring disappeared on the coast of Norway and appeared in Sweden, bringing the disease with them, the disease disappearing in Norway. It is noticeable that nothing is said of the influence of the sailors and fishermen in the migration of the disease; the herring being the supposed agent. Eminent observers in Europe regard fish eaters as the producers of the disease, while the East Indian physicians stoutly deny it. But the fact remains, that leprosy was originally a disease of the sea-coast, and to-day is found in its most aggravated form among fish-eating people. Nevertheless, the disease is found in Central and Northern India, and China, and in Central Mexico, where fish are not eaten to any great extent. In looking over the evidences of the causes of the disease, no satisfactory conclusion can be arrived at. But in consideration of the facts that the disease has afflicted the human race from the time of the earliest historical records, and that its foci have been in the great routes of commerce—its insidious and bewildering origin in any community—the time required for its development in any individual case—the inference is at least reasonable, that although remote and fostering influences may have much to do with its slow or rapid propagation, the real and proximate cause is a specific germ, having its origin in the far remote centuries of the past—even at the cradle of the race; and that it has been perpetuated by a mode of contagion nearly allied to that of syphilis. It is difficult to avoid the conviction that the disease has had many local origins, or that having one, it has been propagated in the above mentioned manner by itineracy and migration; modern observation warrants the latter conclusion.

PATHOLOGY.

The essential pathology of leprosy is acknowledged to be a chronic inflammation in the course of the nerves, and the

formation of a new tissue, of granular character, in the affected parts, around and within the nerves and the nervous centers. In the anesthetic form it is found more closely associated with the nervous system. In the tubercular form, with the integuments of the mucous surfaces. This new growth causes or results in a fatty degeneration and absorption of the nervous tissues, and explains the anesthesia, distortion and loss of vitality in the affected parts. Also, thickening of the subcutaneous veins and enlargement of the cervical glands. The morbid anatomical characteristics, as described by Danielson and Boeck, as well as Virchow and Carter, are: thickening of the neurilemma, separation of the nerve fibrillæ by a dense fibrous deposit, and similar cell infiltration in the leprous tubercle and cutaneous papillæ.

Although chronic thickening and cell infiltration are always associated with elephantiasis græcorum, they cannot always be distinguished from similar changes in elephantiasis arabum, lupus, and allied diseases. And many eminent pathologists, including Virchow and Hebra, regard the inflammation and hypertrophy as symptoms and concomitants of leprosy, the distinguishing pathological lesion of which remains yet to be discovered.

Post-mortem appearances show an involvement of all the internal organs, save the lungs; tubercular deposits in the mesenteric glands, pleura and peritoneum, thickening and ulceration of the bowels. Changes in the nervous centers are not sufficiently pronounced in a majority of examinations to be regarded as a common pathological sequence of the disease. However, pathologists differ in this regard.

Hawaiian leprosy is, in no essential feature, different from the disease in Europe and Asia. It is, however, full of interest to the scientific observer, as its history is well known, and the more important facts of its introduction and propagation are established to nearly an indubitable certainty. The Hawaiian national food—taro and fish—cannot be charged with producing the disease, as these have constituted the principal food of the people for all past time; whereas, leprosy was unknown

in these islands until within the last forty years. Syphilis was introduced by the sailors of Captains Cook and Vancouver, in 1778 to 1792, and spread by licentious cohabitation with whalemen until it is well known that few of the nation are exempt from some form of the disease. Other epidemics, as measles, scarlatina, smallpox, influenza, etc., have no doubt aggravated the syphlitic cachexy, affording a ripe condition for the fearfully destructive action of leprosy.

By general consent of the best observers, leprosy was introduced from China with the Coolie trade, first inaugurated in 1840. The first leper, Ahia, was recognized eight years later—1848. Ragsdale says the first Coolies were introduced in 1850, but many Chinese were brought here by Wm. French earlier than 1840, and several Chinese merchants were doing business at Honolulu from 1840 to 1850. It was no doubt imported from China. The natives call the disease Mai-Pake, Chinese pox, or sickness.

The rapid spread of the disease may be attributed in part to the peculiar habits of the people, such as the family and friends all eating from the same bowl with the fingers, lying on mats on the ground or floor which are the common property of the family, social habits of crowding together in small houses, all using the same tobacco pipe, ava drinking, etc. The *ava*, or *kava—piper methisticum*—a perennial plant, native of the Equatorial and South Pacific Islands, affords by decoction of the root a powerful cerebral stimulant and narcotic poison. It is prepared generally by the women, who chew pieces of the root, mingling with it their saliva, until it is quite soft, when it is ejected into a calabash. The process is repeated until a good handful of the bruised root is prepared. A pint of water is added, when, after being sufficiently macerated, this fluid is pressed out by being inclosed in a wisp of horse hair or cocoa fibre, when it is drank by the supposed invalid. Its effects are in many respects similar to those of the Cannabis Indica. Its prolonged use results in a complete overthrow of the mind and exhaustion of the vitality.

All observers agree that leprosy is hereditary, and that death alone ends it. In the Hawaiian Islands hereditary leprosy has produced most devastating effects to the dismay of these simple people.

The question of how far and by what means the disease is contagious is one of grave importance. It has been said and generally believed that leprosy was originally a disease of the sea-coast. When we consider the fact that the food and habits of the inhabitants of the widely different climates where the disease has wrought its greatest desolation are not uniform, and often differ widely, the inference is plain that it must have had many different origins; or else, that it has been propagated by contagion through migration and itineracy. Hereditary transmission could hardly be considered the only mode of its propagation.

There is no doubt of its importation into the Hawaiian Islands, and of its propagation there by contagion. The Norwegian and Northern European physicians maintain by abundant proofs that the disease is contagious; although the East Indian surgeons are not unanimous in regard to the matter. None, however, deny its inoculability. Here, then, is the solution of the question. The disease is not infectious nor contagious in the same manner as the exanthemata; but is undoubtedly communicated to the healthy tissues through an abrasion of the skin or mucus membranes—the most common mode being, no doubt, by contact of a chancroid and mucous patch, or other disintegration of the mucous surfaces. When we remember the vagaries in the modes of communication of syphilis, and the strange localities in which it may appear, we cannot doubt that leprosy may be and probably is communicated in the same manner in a majority of instances; although there are not wanting facts showing that it may be communicated by other modes.

While visiting the leper settlement on the island of Molokai in 1880, the following statements were made to me by Mr. R. W. Meyer, a very intelligent gentleman and acute observer, who has been identified with the operations of

the Board of Health since its organization by the Hawaiian Government:

At the little port of Kan-na-ka-kai, on the leeward side of the island of Molokai, there is a small collection of houses near the mouth of a stream of fresh water that flows down from the mountain. Here a young native couple married—aged between sixteen and twenty years—both apparently healthy. In due time two children were born, who developed leprosy. The husband also soon exhibited the disease, and was removed, with the children, to the asylum, where he died. The widow married again a healthy young native. Since the second marriage the husband and wife have remained healthy, but the wife has given birth to two children, both lepers, which are now at the asylum.

There was no question raised as to the fidelity of the wife. Presuming that there was no infidelity, what was the mode of transmission? May not a diseased impregnation have had the same effect upon the ovaries of the native mother as a single impregnation of the queen bee, stamping her progeny for life—and as is popularly believed in regard to the horse, that one impregnation by the ass often stamps itself upon all the mare's future progeny, although bred to a thoroughbred horse.

Another phenomenal case is also reported, of an American merchant and wife, residing at Honolulu; both were healthy, three children were born to them, all lepers. One died at Honolulu, another was removed to Oregon, and the third was soon to follow. How did these children get the disease? It may have been given by a native nurse through the breasts, as the mother did not nurse them, or by accidental inoculation.

Impure vaccination was, by common consent of the best observers, one of the most potent causes of the rapid spread of leprosy among the Hawaiian people. Smallpox appeared in 1852 at Honolulu, and spread rapidly over the entire group. The people and Government were unprepared, and much time was lost before a supply of pure vaccine could be obtained. As soon as characteristic crusts could be obtained from primary vaccinations, the work of vaccination fell into

the hands of all classes of the people, native doctors (kahunas), as well as white sailors and settlers in all parts of the islands. Crusts were taken indiscriminately from the arms of children and adults, affected with syphilis and leprosy, and when the smallpox had subsided from want of material, the leprosy appeared in every hamlet; and all agree that its progress was tenfold greater than before the variolous visitation.

Licentiousness may be regarded as the most constantly active cause of the spread of the disease. In this respect the habits of the people have been much improved by the teachings and restraining influences of the missionaries. Jarvis, in his history of the Hawaiian people, second edition, page 73, says: "The ancient Hawaiians were extremely licentious; marriage, as occurring among Christian nations, was unknown. A man had many wives and a woman many husbands. The ties of consanguinity were but little regarded. And among the chiefs, the connection of brother with sister, parent with child, was quite common. For men to interchange their wives and wives their husbands, was a common act of friendship. When a high chief died, a perfect saturnalia of licentiousness prevailed, and no woman, except the wife of the deceased, was exempt from the grossest violation." As late as the year 1862, Dr. F. W. Hutchinson, in a report to the late Dr. R. C. Willie, says: "I conceive that among the reasons why so few children are born among the native population, is the very early period of life at which sexual intercourse commences in both sexes. It would appear incredible were I to state to you the age beyond which I believe very few girls remain virgins."

TREATMENT.

The treatment of leprosy in the Hawaiian Islands has heretofore been merely palliative. A few enthusiasts, with more of enterprise than knowledge, undertook to cure a selected number of cases at the asylum, and after a year or more of treatment returned in humiliation. Among these were an American botanical, and a Chinese doctor. Other more intelligent medical gentlemen have exhausted all the resources of

modern medical science, with only disappointing results. There is, however, a wide field of usefulness in the palliative treatment of the intercurrent diseases to which the leper is subject. Iodide of potassium internally, tincture iodine and copaiba externally, have certainly a restraining effect in the early stages of the disease. So also the *chalmaugra oil*, extracted from the seeds of the *gynocardia odorata*, a large tree, native of the Malayan Peninsula, is reported to have produced very hopeful results. During the last year, 1880, the lepers were subjected to a systematic use of a pill composed of bark of hoang-nan tree 2-5, realgar (native sulphuret of arsenic) 1-5, aluminu sulph. 2-5. The hoang-nan is a tree, native of the East Indies, of the family of the strychnos, and is a powerful vaso-motor stimulant. These pills are prepared in China, and are of various sizes, from one to eight grains. The smaller pill is the initial dose; after a few weeks or months the larger pills may be taken. The hoang-nan pill in full doses produces somnolency, twitching of the muscles, sense of warmth, overcomes chills, and produces a sensation of itching over the entire body. I was informed by the resident physician, Dr. N. B. Emerson, and also by some of the lepers, that these pills gave them great relief, and they were hopeful that the disease would be retarded, if not cured, by their use.

For treatment in extenso in the East Indies, refer to Tilbury Fox, on diseases of the skin, second American edition; also, VanDyke Carter's work on Elephantiasis, quarto with plates, 1874.

See also *Medical Record*, March 12th, 1881, in which is a very interesting letter from Dr. H. G. Piffard, on the therapeutic value of the hoang-nan. It certainly is a very valuable addition to our stock of vaso-motor stimulants, and must be an important supplement to the cinchona alkaloids, if it does not supplant them.

Hereditary leprosy has achieved no special attention at the asylum on Molokai. Of those born of known leprous parents few survive infancy, and none survive adult age. So long as they are isolated and can associate only with lepers, the pre-

sumption is that death prevents any increase of the population. However, in the colder climates of Northern Europe, the matter was regarded of sufficient importance to demand the emasculation of the male children, and castration and ligation of the spermatic ducts have been resorted to in the early part of the century in Scotland and Norway—measures quite unnecessary, where absolute isolation can be secured.

In regard to the *diagnosis* of leprosy, no written description can convey a definite idea of it. The living leper is the best teacher of what the disease is, and next to this the photograph is our best instructor in regard to cutaneous appearances. But any of our standard works on diseases of the skin give a very good idea of the disease. The last edition of Tilbury Fox on skin diseases, being not an expensive work, and may be found in nearly every physician's library, is an excellent guide to a knowledge of the disease. But those wishing to consult more exhaustive treatises are referred to the writings of Danielson and Boeck, and Dr. Carter's works, which leave little to be described as treatises.

The following summary of what is known as to the natural history of elephantiasis græcorum may be relied upon as having been definitely established:

1. It is not a form of syphilis.
2. It is a specific and well marked disease.
3. There are two varieties—the *tubercular* and *anesthetic*.
4. These varieties may be distinct or associated.
5. It is more common in males than females.
6. It is hereditary.
7. It is contagious.
8. It is incurable.
9. Europeans are to a certain extent exempt from the disease; probably from greater precautions in avoiding the contagion.
10. The causes of the disease are unknown.

Finally, leprosy disappears with improved hygienic conditions of a people, cultivation of the soil and absolute isolation of all lepers.

Abundant material is at hand for giving a detailed account of the efforts of the Hawaiian Government to stamp out the disease, and the measure of success achieved; but the limits of this communication forbid more than the following summary:

That the disease was undoubtedly imported from China; that it first made its appearance in the Hawaiian Islands, in 1840; that the first leper, Ahia, was recognized eight years later—1848; that the first governmental action for the arrest of the disease was in 1859. Cases had become alarmingly frequent, and legislation was demanded, to save the native race from extinction. In 1859 the Hawaiian legislature passed "*An Act to Prevent the Spread of Leprosy*," which provided for the gathering together of all the lepers in the kingdom, with a view to their segregation, isolation and treatment. Its execution was confided to the Board of Health, under the presidency of Dr. Hutchinson, Minister of the Interior. The first act of the board was to establish a hospital at Kalihi Oahu, near Honolulu, to which all suspected lepers were brought from all the islands of the group and carefully examined, and none detained but plainly developed cases, and some of these were afterwards discharged as non-lepers. The second act of the board was to secure, by purchase, a portion of the island of Molokai as a leper settlement, where the infected could be isolated. Here the lepers were first transferred, in the early part of January, 1866. At the time of the first gathering of lepers, in 1860, the whole number examined was 1,288; discharged at once as non-lepers, 570; dicharged subsequently, 145; afterwards rearrested as lepers, 7; sent to Molokai, 529; died, 29; ran away, 5.

At the asylum on Molokai March 30th, 1870	267
Sent from Kalihi since April, 1870	175
Direct from other islands	13
Subsequently discharged as non-lepers	3
Died	69
Remaining in the settlement April, 1872	385

Subsequently to the report of 1872, it became apparent that the officers had not been able to gather all the lepers of the

kingdom; but that in every part of the group lepers were to be found, especially about Lahaina and Honolulu. Public opinion demanded an enforcement of the laws of 1865, and extraordinary measures were taken by the board to carry out its provisions. The result being that from April, 1872, to April, 1874, nearly as many persons were examined as during the previous seven years of the existence of the laws, and 451 undoubted lepers were sent to the asylum—all natives or half whites, except one American, one Frenchman, and four Chinamen.

From the biennial report of the Board of Health for 1876, we learn that the following commitments to Molokai were made since April, 1874: Males 175, females 125—300.

The deaths, nearly corresponding to the commitments for this period, were: Males 177, females 122—299.

A review of the reports of the Board of Health covering the period of 1865 to 1876, develops the following facts:

Admitted to Molokai, from January 6th, 1866, to March 30th, 1876	1,570
Annual average	157
Deaths during this period	872
Average mortality	87.2 per cent.

The admissions during the last biennial period have been largely in excess of the average; the number of deaths exceptionally great. For this excessive mortality no explanation can be offered; but the large number of admissions is no doubt due to the energy of the Board of Health in ferreting out the disease.

In the performance of this duty, every obstacle is placed in the way of the officers by relatives, who have no fear of the disease, and use every means to deceive the officers, secreting their friends in secluded spots, in caves and deserted huts.

Four years later, January 1st, 1880, there were at the asylum on Molokai:

Lepers	733
Males	441
Females	299

Deaths since January 1st, 1879.....208
Births since January 13th, 1879..... 9
Males, 3; females, 6.

The annual cost to the Hawaiian Government for the arrest and maintainance of native lepers, has averaged for a number of years, $60,000, besides which—to their great credit be it said—the families and friends of the lepers have contributed from $2,000 to $3,000 per annum for their comfort.

Incipient leprosy may be found in nearly every part of the kingdom; and I was reliably informed that on the plantations, where labor is in great demand, the planters are reluctant in giving information of leprosy, until the disease incapacitates the laborer. To an unbiased mind, it would appear, that notwithstanding the heroic struggle of the Government with the disease, there is little probability of its being eradicated until the last native Hawaiian sleeps with the dead.

The foregoing account of elephantiasis græcorum, its history and frightful ravages in the Hawaiian Islands, is presented, not because of its peculiarities or specific destructiveness in that locality. There are said to be 100,000 lepers in India alone. China is overrun with them. It has appeared in Australia, and it pervades to some extent the Polynesian population and territory. Few of the South Pacific islands are free from it. On the north shore of New Brunswick, Dominion of Canada, leprosy has prevailed more or less since its early settlement by the French, having been brought over with them. At the village of Tracadie, a lazaretto has been established for several years, and is under the charge of the Sisters of Charity of Montreal. It contains twenty-nine inmates in various stages of the disease. See communication of late date, by Jonathan Hutchinson, Esq., F. R. S., in *Medical Press and Circular*, on the etiology of true leprosy. It has established itself in Minnesota and other of the northern States, having been introduced by the Norwegian and Swedish immigration to those States. Dr. Chas. Gronvold, of Norway, Goodhue County, Minnesota, informs me by letter dated June 28th, 1880: That

he has reported some cases of leprosy and a description of some causes of the disease in the first report of the Minnesota State Board of Health, January, 1873. Also, report of a case in the *Archives of Dermatology, Vol. V, No.* 1, January, 1879. The patient is still living and in charge of Dr. Gronvold, in Goodhue County, Minnesota. He refers students of the disease to the works of Danielson and Boeck, and says that Dr. Wilhelm Boeck, deceased, visited the Norwegian lepers in Minnesota and other Northwestern States, to study the disease under these new circumstances, and sent home to Norway a report of fifteen cases, which were published in the *Nord Magazine.*

Whether the disease is spreading in the Northwestern States cannot be known for some years to come.

There is little probability of immediate danger to the population of the Pacific States; but every leper found on our shores is a menace, whether a Chinaman or a Chinese prostitute, or Caucasian merchant or mariner, and the physicians of the Pacific States, as guardians of the public health, should be well informed of all the peculiarities of the disease, and make inquiry into the history of every case simulating leprosy. It is much easier to prevent its introduction than to be rid of it afterwards.

The reciprocity treaty between the Governments of the United States and the Hawaiian Islands, has stimulated the production of sugar and rice, the two leading exports from these islands. The demand for skilled labor has brought a large number of Americans and Europeans into direct contact with the Hawaiian population. A large proportion of these white laborers are migratory, and seldom remain permanently, but return to our shores to make their homes. The same class, which is ordinarily affected with syphilis in any community, is also liable to become affected with leprosy. Incipient leprosy may be found in all parts of the islands, and as prostitution is but lightly covered and hardly concealed, the probabilities are, that within a few years the disease may be

developed in any portion of our country, even where it is not expected.

W. F. Allen, Collector of the Port of Honolulu, has just submitted his annual commercial report for 1880. Table No. 3 gives a list of cargoes invoiced at $10,000 and upwards, imported into Honolulu for 1880. There were eighty-four of these cargoes—three from Canton, two from Hong Kong, two from New York, two from Boston, one from Hamburg, three from Liverpool, two from London, three from Glasgow, one from a cruise, and sixty-five from San Francisco. Passengers arriving at Honolulu in 1880 number 5,593; departures, 1,928; showing 3,665 added to the population of the Islands, 2,505 of which are Chinese, including sixty-three females—only 628 departures of Chinese. Of steamer passengers 1,205 arrived in transit from Australia and New Zealand to San Francisco, and 694 arrived from San Francisco in transit to Australia and New Zealand. Arrival of vessels at Hawaiian ports, 239; representing 141,900 tons. Of this number, 179 vessels, representing 99,600 tons, were under the American flag.

It is true that a cleanly people, of good morals, need have very little fear of leprosy. But are we a cleanly and moral people? Have we not in all our commercial centers an element of most loathsome dirtiness and immorality? It is this element which is dangerous, and from this, like Pandora's box, may fly forth evils which may afflict generations yet unborn. And because the danger is more or less remote, it ill becomes us as guardians of the public health to assume an attitude of resignation, and say as did the King of Israel when informed by the Prophet Isaiah, that "all the sacred vessels of the temple should be carried away by the King of Babylon, and that his sons should become eunuchs in the palace of the Babylonian King," "Good is the word of the Lord which thou hast spoken, *if peace and truth be in my day.*" Our feeling of security should be in the intelligence and watchfulness of California's physicians, and in guarding against every avenue of approach to our shores.

GEOGRAPHY, TOPOGRAPHY AND CLIMATOLOGY OF THE HAWAIIAN ISLANDS, AND OF THE LEPER SETTLEMENT ON THE ISLAND OF MOLOKAI.

The Hawaiian Islands lie in the North Pacific, in latitude 19° 1' to 22° 30' north longitude, 155° to 165° west. Area, 6,740 square miles. Distance from San Francisco, nearly southwest, 2,100 miles; by steamer, seven days; by sailing vessel, fourteen to sixteen days. The islands, eight in number, are of volcanic origin, and conical contour; the higher parts terminating in extinct or active volcanoes, attaining a height of 4,000 to 13,800 feet. The northeast trade winds bathe the windward sides of these islands with a nearly saturated atmosphere, which the mountain elevations condense in showers, forming brooks and torrents, which flow mostly to the northern shores of the islands, while the leeward or southeastern shores are dry and unproductive. The annual rainfall at Hilo, on the windward side of the Island of Hawaii, is 180 inches; at Honolulu, on the leeward side of Oahu, somewhat sheltered from the trade winds, it is only 46 inches. During the months of December, January and February, the rain may equal 4 to 5 inches per month, while in the summer it rarely exceeds 2 inches per month. The windward sides of the islands are free from malarial influences, even in heavily timbered areas, while the leeward sides often suffer in this regard during the winter months, especially where there is much shrubbery. The trade winds, swinging southward with the sun during the winter, barely reach 22° north latitude, and during this time the winds are variable with occasional strong southerly gales, called konas, which affect the southwestern shores, while the northeastern are very little affected by them. The temperature of the group is remarkably uniform. At sunrise, 65° to 70° Fahrenheit, while the midday temperature rarely exceeds 80° to 85°. The atmospheric effect on the human body is always invigorating on the windward shores, these localities being seldom visited by fevers or other malarial diseases. The Hawaiian Board of Health, in selecting a locality healthful as

well as favorable for complete isolation of the lepers, unanimously agreed upon the Peninsula of Kalaupapa, on the windward shore of the Island of Molokai, containing 10,000 acres, semicircular in form and separated from the settled portions of the island by a perpendicular cliff two thousand feet high, down which is only one possible approach to the peninsula by land. This trail is on a jutting angle of the nearly perpendicular *pali*, or cliff, whereon grow a few stunted shrubs; and on this obtuse angle a few excavations have been made on either side of the projection. On this trail the natives pass, carrying mails and small packages for the lepers below; and all visitors must follow suit if armed with a permit from the Board of Health.

The visitor embarks on a small steamer at Honolulu, and after a rough passage of twelve hours, arrives at the landing of Kaunakakai, where, landing in a small boat, he takes a saddle horse and rides up an undulating mountain side some six miles, and reaches an elevation of sixteen hundred feet, when he arrives at the residence of Mr. R. W. Meyer, owner of a large plantation and sugar house on the summit of the island. After rest and refreshment, horses are mounted again, and after riding some four miles, constantly rising, the brink of the *pali* is reached. Horses are sent back to the ranch and the *pali* descended by slow and careful clinging and dropping, until with head swimming and tired muscles the gentle slope at the bottom is reached, and where saddle horses are waiting. After resting a few minutes in the shade of candlenut and pandanus trees, the horses are mounted, and after a breezy ride of two miles the east village is reached and the visitor is welcomed by the resident physician, Dr. N. B. Emerson, a genial scholarly bachelor of forty years, native of Oahu, a graduate of Williams College, and of the College of Physicians and Surgeons, New York. The surgeon's residence is a neat wooden cottage, surrounded by a substantial stone wall, with convenient kitchen, stable and bathroom, and a convenient office and dispensary near the front entrance to the inclosure. The hospital group of buildings occupies a quadrangular area

of some three hundred feet square, around which the small hospital buildings, twelve in number, are situated. These buildings are of one story, elevated a few feet from the ground, having good floors and roofs, and are of California and Oregon lumber—quite cheap, but neat, cleanly and comfortable; some with only one room and cloth partitions, others with two or more rooms, with board partitions, size fifteen by twenty to thirty feet. The lepers, in every stage of the disease, occupy mats and blankets on the floor, a few having cots. The natives prefer the floor and mats. A kitchen, having every convenience, is presided over by a Chinese cook, in which good, wholesome food, in sufficient variety, is prepared and served to the patients in the different wards. Most of the lepers are able to attend to their own wants, and only a few servants are required. An ample supply of good water is furnished to the entire peninsula from two ravines at the base of the *pali*, and distributed in iron pipes for the convenience of the people. There are two villages, one on the west—the only anchorage, where heavy freight is discharged in surf-boats at certain seasons of the year. The other village, containing the hospital buildings, is on the eastern side of the peninsula. Both have native schools and churches. The number of houses in both villages is about three hundred, scattered along the base of the cliff. There are many horses and cattle on the peninsula—the horses used only for riding. The lepers who are not far gone in the disease, enjoy themselves as well and in the same manner as their friends outside of the asylum, being extremely convivial, fond of dancing and other amusements. They live in their own way, two to four occupying one house, and often cultivate a small garden, raising the ordinary culinary vegetables, as well as bananas, pineapples, and other fruits. Their food is mainly the crude product of the root of the *Arum Esculentum* or taro. The tubers, from one to three inches in diameter, are roasted and bruised with water, and reduced to a heavy paste, when it is put up in packages of about ten pounds weight, enveloped in the leaves of the *Ti* plant, a species of *Cordeline*, which grows all over the islands,

and is used instead of wrapping paper. This crude taro is grown in favorable localities and furnished by the cultivators to the government, and delivered at the settlement in stated quantity per month, and is known as paiai. This is subjected to a second bruising, with the addition of water, when it is known as poa, and is eaten with the fingers from calabashes. This poa constitutes nearly the same proportion of the entire food supply as rice does to the Chinese. Fish may be caught in abundance near the settlement, and the lepers supply themselves, eating the fish raw, either fresh or dried in the sun. The government, however, furnishes an abundant supply of fresh beef, mutton, salted and smoked salmon, shipped from Oregon. They are also supplied with potatoes and other vegetables, and all the wheat flour bread they will eat, which is a small amount, as the natives do not take kindly to it.

The following from the list of supplies furnished to the leper settlement as reported by the Board of Health for 1878, conveys a good idea of the varieties, and amount of each variety consumed by the lepers:

Poi and Paiai	$18,273 52
Beef	7,057 55
Salmon	1,479 25
Rice	3,600 54
Bread and Flour	625 36

No effort has been made to separate the sexes, and there are some few societary irregularities, but scarcely more than occur elsewhere on the islands. Only those badly diseased and helpless are treated in the hospital, others are visited every day or two by the physician on horseback, who visits every house, makes prescriptions, attends to societary complaints, and all wants. The prescriptions are brought to the dispensary, where they are filled by the doctor or his assistant. The functions of the physician are manifold. He is expected to visit a prescribed district in the island at stated intervals; keep a careful account of the supplies furnished to the lepers; hear, and adjust all social complaints; visit all the lepers in

the settlement; dispense medicines, and perform such surgical operations as may be necessary.

The peninsula has one landing or anchorage at the western shore, unsafe as a landing most of the year. Heavy supplies are mostly shipped to this point and landed in surf-boats; but all light material is sent across the island. The shores are low and sandy, surrounded by coral reefs. An extinct volcano crater occupies nearly the center of the peninsula, having an elevation of about two hundred feet. From the brink of the crater the land slopes regularly away to either shore; the area of the crater is thirty to forty acres, oval in form, and a depth of one hundred feet; in the bottom and for a short distance up the sides, there is a fine deposit of rich soil; and being protected from the strong winds, a German leper, a blacksmith from Kauai, built a house in it and occupies it, raising fruit and vegetables.

The first impression of the peninsula as seen from the top of the *pali*, and after arriving at the bottom, is that of bleak desolation. The surf thundering eternally against the cliffs on the east; wind blowing a perpetual gale; heavy saturated clouds drifting along the face of the mountains, obscuring the sun, occasionally shedding a torrent of rain, and then disappearing over the summits of the cliffs, only to reappear in ever-varying forms. But there is here picturesque and grand beauty as well. The view along the eastern shore embraces a group of picturesque rocky islands, with green jutting headlands; innumerable cascades, from small mountain streams, are shooting their silvery spray right and left in the fierce wind, which drives the foaming surf half way up the cliffs to meet them. The soil, though rocky, is productive; the climate perfect, and the isolation as nearly complete as desirable. So that from every consideration, the leper settlement on the Island of Molokai is a model of perfection. The only regret is that no treatment has any curative effect, and the progress of the disease among the native population has not abated, and at the present rate of decrease, the entire race will become

extinct in twenty-five years. At the time of the discovery of the islands by Capt. Cook, in 1778, the native population was estimated at 400,000. At the end of the present century, all will have disappeared, chiefly through the diseases, vices, and misfortunes of civilization. Have the past centuries exhibited a more humiliating spectacle?

NOTE.—A series of photographs, twelve in number, illustrating tubercular and anesthetic leprosy, taken by order of the Hawaiian Board of Health, for the use of physicians, may be obtained at the gallery of H. Schoene, Montgomery Avenue, corner of Filbert st., San Francisco, Cal.

PREVENTIVE MEDICINE AND SURGERY IN THE LYING-IN CHAMBER.

BY C. CUSHING, M. D., OF SAN FRANCISCO.

I take up the consideration of the above subject for the following reasons:

First.—If it is a great and good mission on this earth to heal the sick, it is doubtless a greater one to prevent disease; and I feel confident that in the future the great work of our profession will be preventive medicine.

Second.—The injuries and diseases consequent upon childbirth are the most prolific of all causes of chronic uterine affections, and furnish by far the greater proportion of cases which apply to the gynecologist for relief.

Third.—That he who has charge of a parturient woman, or a case of abortion, can, by a little care and attention at the time, mitigate or entirely remove the evil effects that so frequently follow the act of parturition.

I think that the proposition can be safely made, that an abortion, if properly attended, ought to be free from peril unless complicated by some otherwise dangerous disease. Nevertheless, statistics show that the death rate is quite large, more especially where the abortion is criminally produced.

Dr. Lusk, in a paper read before the New York State Medical Society in 1879, says: "Death from faulty management of abortion was by no means of infrequent occurrence—the deaths from this cause reported between the years 1867 and 1875 inclusive, to the Bureau of Vital Statistics in New York, were one hundred and ninety-seven, a number which

falls in all probability considerably short of the truth, by reason of the many circumstances which precisely in this condition tempt to concealment."

The total number of deaths during the same period from metria were nineteen hundred and forty-seven.

M. Lardieu has found that of one hundred and sixteen cases of criminal abortion of which he was able to ascertain the termination, sixty died.

It is, however, true that the elements of danger cluster thickly about the case of criminal abortion. The lack of anatomical knowledge and of medical skill on the part of the abortionist, the haste and secrecy, the efforts to conceal the crime, the depression of spirits and the remorse attending the act, all render the case a perilous one. Not so when the case is from the beginning properly managed, under the care of a competent practitioner. Death should seldom occur.

What have we to fear in a case of abortion? First, excessive hemorrhage; secondly, retention of placenta, with decomposition and septicemia; and lastly, the evil effects of subinvolution of the uterus, with its attendant maladies, displacements, menorrhagia, and the train of nervous symptoms that so commonly follow.

In 1874, I read a paper before this Society, upon the "Management of Abortion;" a further experience since that time has not led me to materially change my views, except that I now act more promptly as soon as it is evident that a miscarriage is inevitable.

If the os is sufficiently dilated, and if the abortion occur at any time before the end of the fourth month, I would suggest that the following plan be pursued: place the woman on a table, on her left side, before a window; introduce a Sims' speculum and remove all blood clots, seize the anterior lip of the uterus with a tenaculum to steady it; introduce a pair of Emmet's curette forceps, and carefully and thoroughly remove all the contents of the uterus, sponge out the cavity with warm carbolized water, using for this purpose, bits of sponge held in the grasp of a sponge holder, then paint the cavity of the

[illegible] over with tincture of iodine, turn the woman over on her back, have a bed-pan put under her and a vaginal injection given of warm carbolized water.

If the os is not sufficiently dilated at the beginning, insert tupelo tent and leave it *in situ* for six hours, when the above procedure can be carried out.

If the woman is more than four months pregnant, the case can be managed as a labor at full term.

The reasons for urging the foregoing plan of treatment during the early months of pregnancy are, that before the end of the fourth month the muscular structure of the uterus is not sufficiently developed for it to expel the placenta, until after there has been a large loss of blood. Furthermore, for the same reason, ergot fails to produce the full effect so characteristic of it later in the pregnancy.

The vaginal tampon, if properly applied, will control the hemorrhage, but will not suffice in all cases to cause the expulsion of the placenta. It requires, to tampon a vagina properly, more care and time and skill as the removal of the contents of the uterus.

I have [illegible] never witnessed any evil effects following the procedure recommended.

It is [illegible] that [illegible] and I believe and with justice, that the [illegible] is a frequent cause of hyperplasia of the uterus. [illegible] should be done to lessen the ill effects in this [illegible].

Nothing [illegible] the place of rest and quiet in these cases and it certainly is the duty of the medical man to [illegible] the active [illegible] patients [illegible] are likely to [illegible] going about the [illegible] after a miscarriage in bed as much care should be exercised as after labor at full term, if we wish to avoid the bad effects of the accident.

A vaginal injection of water as warm as can be borne comfortably by the hand given night and morning for the first three weeks after abortion assists the reduction in size of the uterus by its stimulating effects on the pelvic circulation.

Professor Leishman, of Glasgow, whose text-book on midwifery is considered a standard authority, while upon the whole favoring the temporizing and expectant method of treating cases of abortion in which the placenta and membranes are retained, says, as he sums up his remarks: "We are convinced from long experience, that no more fruitful source of menstrual disorders or chronic uterine disease exists, than what arises from a want of due precaution at this critical period of a woman's existence."

It is probably the rule that the large majority of women who give birth to children, more particularly in first confinements, suffer from more or less laceration of the cervix, whether there be manual assistance or not. And I wish now to particularly call the attention of the members of the Society to the fact that the pathological importance of the injury depends wholly upon the changes that take place in the uterus during the first six weeks following delivery. The extent of the laceration is doubtless increased where the os uteri is rigid and unyielding; where the head of the child is unusually large; where the labor is rapid; where forceps are used to complete the first stage of labor; and where ergot is given so as to produce the powerful and continuous contraction of the uterus, thus forcing the child rapidly through the os.

The practical question at once arises, what can be done to modify or prevent the injury? I would suggest that in a case of an unyielding os, that sufficient ether be given to produce complete anesthesia for ten minutes, so as to produce perfect relaxation of the whole body, to be followed by a full dose of chloral, if required. By this procedure we shall obtund the irritability of the cervix in the quickest and surest way.

I would advise strongly against the administration of ergot to expel the child, for I believe that we have in the obstetric forceps a much safer and more reliable means to accomplish the delivery whenever interference is indicated. When ergot is administered and produces its full effect, the power that has been set in motion is not under your control, but the child's head is forced persistently and unremittingly down through

the cervix against the vagina, rectum, bladder and perineum, and if there be rigidity of the parts or the head be disproportionately large, the danger to the soft parts of the mother is great. On the other hand, if interference is indicated, we have in the obstetric forceps a power much more completely under our control, whether it be to expedite the passage of the head or to restrain its progress. They can be removed and applied as indications appear, and the judgment of the physician directs. In short, the attendant is master of the situation, as far as the application of additional force is concerned.

As far as I am aware, the only symptom that would lead to the suspicion of the existence of an extensive laceration of the cervix, would be the occurrence of hemorrhage following the delivery, and after the removal of the placenta and the firm contraction of the uterus.

If all the placenta has been removed, and under the hand placed upon the abdomen the uterus is found contracted, firm and hard, and the hemorrhage is troublesome, it is well to make a digital examination of the cervix to determine the extent of the injury, and whether blood is pouring from an injured artery.

If a large vessel is involved and the bleeding is not controlled by a vaginal injection of hot water, I think it better to at once pass a silver wire through both flaps of the laceration, and draw the injured surfaces together, thus stopping the bleeding and putting the parts in the best condition for repair. The loop of wire can then be cut short and left in for several weeks without fear of injury.

If, however, the bleeding is not excessive, or is controlled by the vaginal injections of hot water, the following plan commends itself in order to fulfill the indications: If possible confine the woman strictly to the horizontal posture for the first ten days after delivery, having her lie part of the time upon her side, with the leg that is uppermost drawn up somewhat in the Sims' position, in order that the weight of the intestines be taken off the uterus and the organ be allowed to gravitate forwards and upwards. By means of

vaginal injections of warm carbolized water used freely night and morning keep the parts free from decomposing and irritating secretions, in order to promote healing of the surfaces. In fact, treating the injured parts precisely as you would a wound in any other portion of the body.

Notwithstanding the arguments that have been used against vaginal injections following delivery, the above plan is based on sound principles, and is followed by excellent results, as I can testify from an experience of several hundred cases.

Among women who have borne children there is no disease of the uterus that is so common as that of subinvolution. This condition, which has been described under the head of chronic inflammation of the womb, areolar hyperplasia, chronic congestion, infarctus, etc., consists, in fact, when occurring in a woman who a short time previously had been confined at full term, or had suffered from an abortion, in an arrest of the retrograde metamorphosis that commences in the uterus, following the expulsion of its contents.

As all the members are aware, we have here one of the most beautiful and striking illustrations to be found in the animal economy, whereby nature, when not interfered with in her process, effectually removes the hypertrophied tissues in the short space of six weeks. The tissues undergo a fatty degeneration, the vessels absorb the fatty matter, and it is then thrown out of the system by the various emunctories. Anything that interferes with this process of involution produces the disease in question.

The microscope, in the hands of such men as Klob and Scanzoni, in Germany, and Dr. Snow Beck, in London, has demonstrated that the enlarged and tender uterus that we so often see, for months and years following delivery, is not a chronic inflammation, as was formerly supposed, but a hyperplasia, mainly of the connective tissue, attended with disease of the lining membrane of the uterus, venous congestion, and a condition of hyperesthesia of the nerves of the part.

Leaving out the consideration of the predisposing causes, I will confine myself to the question at hand. What can be

done in the lying-in chamber to mitigate the frequency of this disease?

Probably no one cause is so prolific of this affection as a too early getting-up following delivery, and too active exertion during the first two weeks after being out of bed.

The subject may seem a hackneyed one to many, and the necessity of confining a woman to her bed for two weeks, and insisting on a moderate amount of exercise for two weeks after being out of bed, may seem to some an excess of precaution, but notwithstanding the fact that women in rude health, especially those who have lived on plain food and have been accustomed to simple habits of life, do recover rapidly and perfectly after an early getting-up; it is also true that among our American women in the upper and middle walks of life, with their highly developed nervous organization, the wear and tear of mind and body consequent upon the anxiety, the hurry and bustle of our modern American civilization, we will find few who can with impunity get up and go about at the end of a week or nine days after delivery.

In what way does a too early getting-up prevent involution of the uterus? First, the return circulation of blood from the pelvis is not as perfect when the woman is on her feet as when she is in the horizontal posture. Secondly, the amount of displacement that occurs as a consequence of the enlarged uterus, and the relaxed condition of the tissues of the pelvis, tend to produce and keep up a congested condition of the veins of the uterus, thus interfering with the progress of the normal changes going on in the structure of the organ. Thirdly, the movements of the woman and the displacement of the uterus downwards, tend to prevent the healing of the lacerations that have occurred in the cervix, and which are so frequent an accompaniment of the chronic enlargement. And lastly, the evil effects to which the woman is liable, arising from exposure to cold in many ways that never would have occurred had she remained in bed.

The only argument against the confinement to bed for two weeks that to me seems to have force, is, that the muscular

and circulatory systems become weakened, and their tone impaired thereby.

The evil effects of the confinement can be in a great measure obviated by the adoption of the following plan:

Commencing upon the third day following delivery, let the nurse or whoever has charge of the woman, give the patient a rubbing from head to foot with the bare hand; not a mere superficial friction, but let every joint have passive motion applied to it and all the muscles be thoroughly kneaded.

In conjunction with this, it is of the first importance that the atmosphere of the lying-in chamber be kept fresh and pure as possible, in order that the woman may not suffer the poisoning of her blood consequent upon being shut up in a close room filled with foul air. Ventilation, then, of the chamber, should never be overlooked, if we wish to avoid a lowered vitality and secure a good getting-up.

Shall vaginal injections be used following delivery, as a rule? I believe that the use of soothing and disinfecting vaginal injections are as much indicated for the first three weeks after delivery as they would be after any surgical procedure about the vagina or cervix, attended by a solution of continuity and followed by a muco-purulent discharge. It certainly would not be considered good practice to neglect cleanliness in the management of a surgical case, and every puerperal woman is a surgical case to this degree, that there has been a solution of continuity in some portion of the genital tract. Is it not then sound practice to keep the vagina clean by vaginal injections of warm carbolized water used every eight hours, instead of allowing the irritating and decomposing secretions to be in contact with raw surfaces, prevent their healing, poison the blood of the woman, and contaminate the atmosphere of the sick room?

I doubt not that the question will arise to the lips of many, since labor is a physiological process and in the absence of epidemics, blood poisoning and death are uncommon occurrences, why the need of the artificial appliances?

In view of all the facts, it has ever been a source of wonder to me that so few puerperal women who have been allowed to go on without attention to cleanliness, with bad smelling discharges from the uterus and vagina flowing over unhealed surfaces, should suffer from the evil effects of poisonous inoculation.

Were such discharges allowed to come in contact with an unhealed wound on the surface of the body, we would anticipate only the worst results; and the only explanation that I can offer for the comparatively small number of cases of blood poisoning following delivery, is that the injured surfaces commence granulating and throwing off secretion, and are thus less liable to be affected by poisonous secretions.

Although I am unable to adduce statistics to prove the fact, I have become satisfied from a considerable number of observations, both in gynecological and obstetric practice, that many cases of uterine and pelvic inflammation can be checked and prevented by the timely and thorough use of antiseptic vaginal injections.

We come now to the question, in what way does antiseptic vaginal injections following delivery assist in the involution of the uterus? I answer, by the removal of irritating secretions, the healing of local lesions, and the prevention of local inflammations, as well as by preventing the lowering of the tone of the whole body by contact with poisonous matters.

If the discharge from the vagina is offensive, and is not corrected by the vaginal injections, a large sized gum catheter should be attached to the syringe and the body of the uterus be thoroughly and carefully washed out every night and morning with carbolized water, one grain of the acid to the ounce, and used as warm as can be borne by the hand comfortably.

Where the os is patulous, as is the case after delivery, this can be done with safety, and the offending matter, whether it be a decomposing blood clot or a fragment of placenta, can be washed away or rendered harmless.

With rare exceptions vesico and recto-vaginal fistulæ are caused by delay in the second stage of labor while the head is passing through the cavity of the pelvis.

The conditions that cause the delay are usually the following: Disproportion between the size of the child's head and the maternal passages; rigidity of the soft parts of the mother upon which the child's head impinges; distension of the bladder or rectum of the mother.

The element of danger in the production of fistula is, that the pressure exerted by the child's head shall be continuous, and of sufficient force to cause a slough to take place at the point of greatest pressure, which is usually that portion of the bladder caught between the os pubis and the child's head.

So long as the head recedes after each expulsive pain, the danger of fistula is small, but if the pain is continuous and of much force every moment increases the danger of fistula after the head becomes stationary.

The lesson taught by the history of the large number of cases of vesico-vaginal fistula that apply for relief at the New York State Woman's Hospital, is, to deliver the child at once if the head ceases to recede after a pain.

The means at our disposal for effecting the delivery, are the administration of ergot and the use of the obstetric forceps.

If the head is impacted the administration of ergot would be sure to aggravate the danger, unless sufficient power was developed to secure prompt delivery, but the worst feature attending the use of this drug is the persistent and continuous action set up, and our inability to regulate its power.

Dr. Emmet, who is one of the latest and best authorities on the subject of vesico-vaginal fistula, says: "The worst and most troublesome cases of fistula that came to the hospital, were caused by the administration of ergot which was given to complete the delivery, in cases where there was impaction of the head."

As the members of this Society are aware, I have for the past ten years strenuously opposed the administration of ergot to parturient women until after the birth of the child, believ-

ing, as I do, that it is attended with danger both to the woman and her offspring. If, then, we wish to avoid the production of vesico-vaginal fistula, see to it that the bladder is empty independently of what the patient or nurse may say, using a flexible male catheter if needed; when the head is low in the pelvis, insure the absence of feces in the rectum; if the soft parts are rigid and the head stationary, administer an anesthetic to produce relaxation; apply the forceps and make firm but remittent traction in the line of the sacral curve, and deliver as rapidly as consistent with safety.

In speaking of the use of forceps in connection with the causation of fistula, Dr. Emmet says: "To establish beyond question the effect of instrumental delivery in these cases is a most important matter from a medico-legal point of view, since suits for malpractice have been instituted on the plea of damage sustained through want of dexterity on the part of the attending physician.

"I do not hesitate to make the statement that I have never met with a case of vesico-vaginal fistula which without doubt could be shown to have resulted from instrumental delivery. On the contrary, the entire weight of evidence is conclusive in proving that the injury is a consequence of delay in delivery."

I am not advocating the use of forceps in cases where the natural powers are equal to the delivery with safety to the mother and child, but simply as a means to prevent the accident of fistula, an accident that brings much discomfort to the patient and discredit to her physician.

Rupture of the perineum is another not uncommon accident in the lying-in chamber, and if we are to judge of it by the evil effects which often follow in neglected cases, we will find it worthy of our earnest consideration.

When a woman becomes pregnant the vagina, in common with the uterus, undergoes a marked development, in order to fit it for the function of transmission of the child through the pelvis. The appreciation of this fact is necessary in order to

understand clearly in what way a laceration of the perineum becomes at times an important factor of a pathological state.

That more or less laceration of the perineum is unavoidable is now generally conceded, and various methods have been advocated to prevent it.

By far the most common causes of the accident is the existence of a rigid perineum, such as we so frequently see in first pregnancies, or the rapid descent of the head upon the perineum, with expulsion taking place before the parts can be sufficiently dilated.

The plan of supporting the perineum during the passage of the head through the vulva, and that of avoiding any such support, is advocated by different authorities; the drawing of the perineum forward by inserting one or two fingers into the rectum, in order to furnish a larger amount of tissue to undergo the expansion as the head is being expelled; the nicking of the sides of the vaginal opening as it becomes distended, in order that the direction and extent of the laceration may be modified or determined, all have been recommended.

I would recommend the following plan, for thereas on that it fulfills the two principal and important indications in the case, viz: relaxation of the soft parts and modification of the contractions of the uterus and expulsive efforts of the abdominal muscles until the perineum has undergone more complete dilatation. I refer to the administration of anesthetics during the passage of the child's head, in those cases where laceration is imminent and is likely to prove extensive.

Especially is this plan indicated in the case of first labors where the perineum is firm and unyielding, and the expulsive pains rapid and powerful; and I think where used in appropriate cases those who give this method a trial will be pleased with it.

The anesthesia can be pushed sufficiently far to modify the contractions without stopping them. That they can be thus modified I have seen too many examples to doubt.

I will state here my firm convictions that every case of perineal laceration should be closed by sutures immediately

after the delivery of the child, if the laceration is one-fourth of an inch in extent. More particularly would I urge it if the injury be more extensive, or if the laceration extend into the bowels.

The operation of closing the tear is quickly and easily performed; the parts are benumbed by the great distension, and but little complaint is made by the patient; in case of need, anesthesia is always in order, and the operation is much facilitated by taking a sponge the size of a large orange, fastening a strong cord to it and pushing it up into the vagina to prevent the flow of blood from the uterus obstructing the view while the sutures are being introduced.

The presence of the sponge is particularly advantageous where it is necessary to introduce sutures through the recto-vaginal septum before closing the perineum; after the operation is completed, the sponge can easily be removed by means of the cord.

Silver wire sutures are by far the best and safest, they are not irritating and can be left in for many days without danger, and no obstetric case should be considered complete without the wire and needles requisite for this operation.

Silk sutures, however, often answer an excellent purpose and should be used in the absence of the metal ones.

The sutures should be left *in situ* for a week or ten days in bad cases, the vagina kept clean by injections of carbolized water, the knees kept bound together, but the patient allowed to lie upon her side whenever she desires.

The reasons for urging the immediate closure of the lacerated perineum, are, that in the event of failure to get union, no injury has been done and no time lost on the part of the patient. If we succeed in getting union, we then have the parts in their normal condition and avoid the evil effect consequent upon the destruction of an important support, and avoid the need of a future operation involving renewed pain and the expenditure of time, skill and money.

If the laceration extend only down to the bowels, and is allowed to heal by granulation, the repair is often very imperfect; sub-involution of the vagina remains as a consequence,

and prolapse of the posterior vaginal wall often follows and with it prolapse and retroversion of the uterus. The perineum being absent and the ostium vaginæ patulous, no internal vaginal support can be retained, and no pessary with an external support can be worn for any great length of time with comfort.

The site of the cicatrix that has been formed by granulation is often exquisitely sensitive, and attended with severe constitutional nervous symptoms, the condition requiring an operation for its cure.

I trust that I have attracted the attention of those who attend women in confinement, to the importance of the questions we have been considering.

To those who have had opportunities of witnessing the large number of women who apply to the gynecologist for relief from the diseases consequent upon child-birth, the importance of the subject will not seem overestimated and I am willing to believe that we all feel a deep interest in whatever will contribute to the health and happiness of the better part of mankind.

LOCOMOTOR ATAXIA.

By J. O. HIRSCHFELDER, M. D.

Mr. President and Members of the Medical Society of the State of California: Of all the diseases of the spinal cord, probably the most frequent is that which shall be the subject of this paper, Locomotor Ataxia. It is a disease which inflicts the most terrible torture upon the patient, and in its later stages is no longer amenable to treatment. It may, however, thanks to the indefatigable labors of the neurologist, be recognized in its very earliest stages, long before even the suspicion of severe disease enters the mind of the patient. It behooves the general practitioner, therefore, to render himself familiar with the signs whereby he may recognize the inception of this baneful malady, and so give the patient his only chance of recovery.

As you well know, locomotor ataxia is a sclerosis of the posterior columns of the cord. These posterior columns are divided, as may be seen by this figure, into two subordinate fasciculi; the internal, that is to say, immediately adjacent to the posterior fissure, which is called the column of Goll (painted violet), and that external to the latter, extending to the posterior nerve roots, that is painted red, and is called the column of Burdach or the bandelettes externe of the French nomenclature.

Now it has been found by careful microscopic examination of the earlier forms of the disease, that the columns of Burdach are those directly implicated; that their affection suffices to produce the prominent symptoms, whereas the columns of Goll are merely secondarily involved. If compression of the cord occur in the dorsal region, an ascending sclerosis in the

posterior columns ensues, limited to the columns of Goll, and yet not a single symptom of tabes. If, however, in affections of the chord the columns of Burdach become involved immediately, lancinating pains and muscular incoordination result.

Locomotor ataxia, or, as it may be anatomically denominated, sclerosis of the posterior columns, may be divided into three stages. 1st, the neuralgic; 2d, the atactic; and 3d, the paralytic period.

It is principally in the neuralgic period that the disease is apt to be confounded with rheumatism or neuralgia, and I shall therefore call your attention to the symptoms that mark it. The disease begins in a most insidious manner, and may remain in this prodromal stage for a longer or a shorter period, as long as twenty years, before the characteristic ataxia sets in.

The symptoms of the initial period are spinal and cephalic. Of the spinal symptoms the most prominent are pains. These pains vary in character. They may be boring, and are then compared with the feeling that would be produced by plunging a knife into the flesh turning it at the same time. These pains are usually observed in the vicinity of a joint, but they are transient, reappearing at another joint. They usually affect the lower extremities, but may involve the upper, the head or the trunk. Hyperæsthesia is usually present over their seat, so that slight pressure is most severely felt, but firm pressure allays the pain. The pains may be lancinating, that is like flashes passing down the part, following the tract of a nerve, and frequently leaving eruptions behind to mark their course. They are of short duration, but occur in paroxysms lasting as long as a week. Then ensues a longer or shorter period of freedom from pain, whereupon again the paroxysms set in. During the attack the nerve involved is sensitive to pressure, but during the interval the patient may be absolutely free from pain. They may vary in intensity, may be so slight as barely to be noticed or they may cause the most excruciating torture. They usually come on at night, and are observed to be most frequent in bad weather, with high winds, rain, snow, fogs and low state of the barometer.

The pains may be constricting. These pains produce a feeling as if the part affected were clamped in a vise. They may accompany the other forms of pain or may be independent.

Visceral attacks of various kinds likewise occur in the early stages of tabes. The most frequent form is that described by Charcot as "crises gastriques." These gastric attacks have frequently been confounded with cardialgia from other causes, and given rise to gross diagnostic errors. The patient is suddenly attacked with severe abdominal pains, radiating from the epigastrium, together with incessant vomiting of mucus often tinged with bile or blood. Great depression and sometimes vertigo accompany it. At the same time the patient may experience pain between the shoulders, from whence lancinating pains radiate through the trunk. Rapid and vigorous action of the heart is present usually during these attacks. The action of the heart is sometimes more frequent than normaly, even at other times beating as frequently as 150 times a minute, the spygmograph showing well marked dicrotism. Gastric pains occur in paroxysms similar to the lancinating, which may occur simultaneously. During the interval of the attacks the stomach may properly perform its function. Vesical and urethral attacks may likewise occur, with frequent desire to micturate, the passage of water being accompanied with severe pain. Rectal attacks are also observed, the sensation experienced being that of a large body suddenly forced into the rectum, attended with tenesmus, and often the expulsion of feces. The pains may simulate renal colic. In such cases, according to Raynaud, pains occur radiating from the hypogastrium towards the epigastrium, unattended with hæmaturia, and of frequent occurrence. Martin has likewise described attacks of the larynx and pharynx with severe convulsive cough, which may occur spontaneously or upon slight irritation. Accompanying this is a deglutory cramp, preventing the passage of saliva and food through the isthmus fautium. Satyriasis is likewise sometimes observed, attended with pain-

ful erections and a discharge of semen upon very slight causes.

Pain in the back is a rare symptom, although it sometimes occurs. Severe backache is due to accompanying meningitis.

Besides these forms of pain, other anomalies of sensation occur.

Paræsthesia in its various forms is one of the most frequent early symptoms of tabes. The lower or the upper extremity may be the seat of formications, as if ants were crawling over the part affected. They may be circumscribed or they may be diffuse. The territory of the ulnar nerve is quite often involved. A feeling of numbness may likewise exist, as if the part were asleep. The patient then feels as if he were standing upon wool or a thick carpet, or a bladder filled with air or water, or a cloud, different patients describing the symptoms differently, but all agreeing in this: that the feeling of firmness beneath them is lost. The patient may have the sensation of heat or cold in the extremities, and not rarely they are covered with a clammy perspiration. Hyperæsthesia of the skin is also observed more or less extended. It may involve all the qualities of sensation or only certain qualities may be affected. Thus the sensation of touch may be hyperæsthetic, whereas the sense of temperature may be normal.

Anæsthesia is more frequent. It may be present and yet the patient have absolutely no knowledge of the fact until demonstrated by a careful examination. In the severer forms, however, it is quite evident. In the very early stages complete anæsthesia is rare. In the initial period it is usually incomplete. This anæthesia of certain qualities is frequent. Analgesia, that is, insensibility to pain, is the most frequent form. The sense of temperature usually persists the longest.

Remak observed a very interesting feature in the early stages of the disease—a retardation in the rapidity of the transmission of pain. If we prick an individual so affected with a pin, and note the time that elapses between the prick and the exclamation, we will find a decided retardation. In a case of Remak, the exclamation followed in three seconds, and one

second later a reflex movement occurred. In one case reported by him the retardation was as long as twelve seconds. I have measured the period accurately upon one of my patients in the early stage of the disease, and have found the period of transmission to be one and a half seconds, although in healthy individuals the duration is less than half a second.

In such cases the sense of touch travels much faster than that of pain, so that upon pricking the patient he may immediately respond that he has been touched and later express pain. It may happen that a number of echoes of pain, so to speak, may occur—the sensation of pain diminishing—another feeling of pain ensuing from a single prick. The sensation of pain is often not localized, but is spread over a large area, its size depending upon the severity of the irritation.

Trophic changes, depending upon lesion of the spine, likewise occur in the preatactic stage of the disease, although rarely. Such changes are eruptions, atrophy of the muscles and bones, and a peculiar affection of the joints. These affections of the joints, or arthropathies, as they are called by Charcot, who first described them, are sometimes found in the initial stage, and as they are apt be confounded with rheumatism, it may be well to describe them. In these cases a swelling of the joint occurs without any traumatic or other external cause, and not preceded by any premonitory signs except perhaps a slight crackling. The joint suddenly swells without pain or fever, and the tumescence depending in part upon a serous effusion into the synovial soc, and in part upon a surrounding œdema. The swelling may disappear, or grave affections may ensue, destruction of the head of the bone and dislocation. The member, in spite of the articular swelling, may fully perform its duty. The knee is most frequently affected, next in order coming the shoulder, and then the elbow, hip, and the smaller joints.

Westphal has lately directed attention to a peculiar symptom in tabes. If a healthy individual with hanging legs be struck upon the patellar tendon the leg is thrown up in a reflex manner. This symptom has been called tendon reflex, or knee

phenomenon. Experimentation has shown the seat of this reflex in the cord to be the region between the fifth and sixth dorsal vertebrum. In order that the tendon reflex should be present, the quadriceps muscle must possess the normal tonus. If through any cause the tonus is lost, the tendon reflex disappears. Berger, who examined 1,400 healthy individuals, found it absent in twenty-two cases—that is 1½ per cent. Westphal states that he has never found it permanently absent in the healthy. He remarks that it is often very difficult to find in short fat individuals, in whom the tendon is short and padded underneath with a cushion of adipose tissue, so that the vibration of the tendon is interfered with. This may be the reason that Berger failed in his twenty-two cases, as his material was Bavarians, who are noted for their rotundity. This tendon reflex has been found to be almost invariably absent in tabes dorsalis, and the disappearance thereof is one of the earliest signs of the disease.

Westphal relates the case of an individual afflicted with atrophy of the optic nerve, in whom he saw the knee phenomenon after two years disappear on the right leg and two and a half months later on the left side. Five days later the patient died of intercurrent disease. There had been no disturbances of sensation, and not a trace of ataxia present. The autopsy revealed beginning degeneration of the columns of Burdach. Microscopic examination showed that only the inner portion of the columns of Burdach were affected, leaving intact the external portion through which the posterior nerve roots run, as is demonstrated in this figure.

In Pierret's case, in which lancinating pains were the only spinal symptom observed (the case having died, however, before attention had been called to the tendon reflex), the lesion was likewise in the columns of Burdach alone, but involved its external portion immediately adjacent to the posterior nerve roots, as may be seen on this plate. This absence of the tendon reflex is one of the most important of the initial signs of tabes dorsalis.

Besides these spinal affections, cephalic symptoms develop earlier in the disease. Any one of the nerves arising from the medulla oblongata may be involved; most frequently the oculo-motor nerve is the seat of lesion, producing paresis of various muscles of the eyeball, which are usually transient in character. The abducens and the nerve patheticus may be similarly affected. More rarely a paresis of the facial nerve or of the hypoglossus is observed. Severe lancinating pains are also sometimes felt in the trigeminus or in the occipital nerve. One of my patients noted a severe pain in both occipital nerves, especially in the left, as one of the earliest symptoms. A peculiar state of the pupil has been recorded by Argyle Robinson. The reaction of the pupil to light becomes impaired, whereas, the contraction upon accommodation remains normal. The pupils are usually unequal, and in the initial stage may be either dilated or contracted. In the very earliest stages, according to some authors, the pupil is very sensitive to light, so that the patient sees best at dusk. In one of my cases that symptom was likewise recorded.

Besides this pupillary reaction, other visual derangements are observed early in the disease. A loss of the color perception is frequently observed, green disappearing first, then red, blue and yellow remaining the longest. The field of vision likewise contracts more and more, not in a concentric manner but irregularly; at the same time the vision becomes cloudy, then more and more dim, and finally entirely lost. The ophthalmic examination reveals a perfectly characteristic lesion. The papilla has become white or bluish; it has a mottled appearance; its form and dimensions remain unaltered; its borders are well defined; the vessels are but slightly affected, but in consequence of the disappearance of the myeline sheaths the papilla ceases to be transparent. This alteration is almost pathognomonic of tabes dorsalis and frequently occurs as one of the earliest signs of the disease. It is due to degeneration of the optic nerve, which progresses from the periphery towards the center.

We see from the preceding remarks that the initial period of locomotor ataxia is indicated by well marked signs, peculiar pains, immobility of the pupil to light, loss of the tendon reflex and atrophy of the optic nerve. Wherever we find these signs they point to the dark future ahead and bid us beware of how we encourage our patients with promises of recovery.

James Haley came to me first, about a year and a half ago. He had had a chancre four years before, followed by secondary (Erb found syph. in 82%). He complained of lancinating pains in the legs, especially the left, once or twice in the testicles. Pains most severe after intercourse; slight tottering with eyes closed; total absence of tendon reflex; Argyll Robinson pupil with dil. of right; beginning atrophy of optic nerves; period between prick of pin and sensation 1⅛ seconds. Patient says he feels an appreciable interval between sensation of touch and pain. No perceptible disturbance of muscular sense; feels the ground firmly beneath him. Applied C. C. to spine and gave arg. nitr. ⅛ gr. After six months' treatment in this manner, patient became much improved, the sensibility became normal, no appreciable retard of sensation being present. Pains were much diminished. The absence of tendon reflex and ocular symptoms are still present, together with slight tottering upon closure of the eyes.

TREATMENT OF SUBCLAVIAN ANEURISM BY ERGOT AND IODIDE OF POTASSIUM.

BY A. G. ANTHONY, M. D., OF OAKLAND.

The patient was presented to the Society by W. F. McNutt, M. D. I was called on the night of August 6th, 1878, to see Captain R——, age 52, occupation pilot. I found the patient suffering most excrutiating pain in the right shoulder, and examination disclosed a large aneurism, occupying distal portion of subclavian and approximal portion of the axillary, about the size of a goose egg. The pulsation of tumor was very distinct. The pain was so extreme that I administered eight grains of morphine in the first twenty-four hours of my attendance.

W. F. McNutt, M. D., of San Francisco, being called in consultation, we put the patient on Squibb's solid extract of ergot, two to four grains every fourth hour, and ten grains of iodide of potassium every fourth hour, with sufficient morphine to allay the pain. This treatment was continued for two months, at the end of which time he required very little morphine, was able to be about, pulsation in the tumor very much diminished, and the pulse scarcely perceptible. The treatment was continued, occasionally omitting the iodide when it produced irritation of the bowels, until the next June, 1879, after which time he required no morphine, the tumor was greatly diminished in size, pulsation scarcely perceptible, with the health so far recovered that he resumed his work as a pilot, making his first trip June 4th, 1879. He continued his occupation until November, 1879, all the while continuing his ergot and iodide; when one night (in November, 1879,) he noticed his

arm getting cold, and on waking up in the morning he was much alarmed that he had no radial pulse and no pulsation in the tumor, the arm being quite paralyzed. I kept him in bed, had the arm wrapped in flannel, hot bottles applied, suspended the medicine, and in a day or two had the satisfaction of seeing a very fair collateral circulation established.

In about three weeks afterwards, namely, in December, the Captain again resumed his work as pilot, and has continued his occupation since, but has never had any radial pulse or any pulsation in tumor, which fact the members had an opportunity of verifying for themselves, when the patient was presented to the Society by W. F. McNutt, M. D.

REPORT OF COMMITTEE ON NECROLOGY.

BY J. BRADFORD COX, M. D., CHAIRMAN.

MR. PRESIDENT AND MEMBERS OF THE MEDICAL SOCIETY OF THE STATE OF CALIFORNIA: As Chairman of your Committee on Necrology, I beg leave to offer the following report:

IN MEMORIAM.

During the year just past the Society has lost three of its members, viz: Dr. Elize Pfeifer Stone, Prof. Wm. T. Wythe, and Prof. A. A. O'Neil, all of whom were engaged in active practice. If other deaths have occurred, I have not been notified of them. In these three, however, the Society has sustained a great loss, owing to the fact that they were among its most active members, wielding a powerful influence towards shaping the future medical literature of the Pacific Coast. It is to be hoped, and in fact is quite probable, that this influence will not soon be forgotten.

The memory of beautiful and useful lives has done much towards the refinement and elevation of mankind. Few persons have ever lived who have not been made better and truer men and women by reflecting on the life of some dear one who has passed from the visible to the invisible world. The record of the beautiful deeds of every one is written somewhere. It may be only in the minds of a few associates; or it may be in the minds of nearly all mankind,

and transferred to the pages of history. In either case, the record has its mission and assists in the great work of rendering mankind happier and more like Him who created us in his own image.

Each well spent life an influence sheds abroad,
Some soul to guide in ways that lead to God,
Shines as a bright and guiding star above,
To lead some wanderer to a home of love.

DR. ELIZE PFEIFER STONE.

BORN IN MAINZ, GERMANY, 1819; DIED IN OAKLAND, CAL., MAY 30TH, 1880.

The early education of the subject of this sketch was not neglected. At the age of ten years she was placed in one of the first class educational institutions for which Germany is justly noted, and there remained until seventeen years of age. At the age of twenty-five she entered Giessen University, and remained three years, enjoying the advantages of the lectures and clinics equally with other students. She then commenced the practice of medicine in Mainz, at the same time taking an active interest in the political questions of the day.

Three years later she came to New York, and commenced the practice of her profession. A case of placenta previa to which she was called brought her to the favorable notice of the leading German physicians, and procured her recognition as a courageous and skillful accoucheur. After two years' practice here, she lost her husband, Herr. Gebhardt, a musician, who died of yellow fever after a short visit to Cuba. She now gave up practice for a year, going to Buffalo, New York, and remaining with a brother there. She then returned to her practice in New York, where she remained until 1857, in which year she was married to Mr. Geo. Stone, and with him removed to Nevada City, California. Here she practiced her profession for five or six years, when she decided to locate in San Francisco; where she soon secured the confidence of a large and profitable class of patients.

In 1867 she received a diploma from the Woman's College of Medicine, Philadelphia, Pennsylvania. From Philadelphia she went to Europe, but soon returned to her practice in San Francisco, where she remained until 1871, at which time she removed to Oakland, where she remained until her death.

She took great interest in electricity as a therapeutic agent, and used it extensively in her practice. She reported some interesting cases of her successful use of it in the Pacific Medical and Surgical Journal and to the State Medical Society. Some of the most gratifying events of her life were her receptions as a member of the State Medical Society of California, and the Alameda County Medical Association. Her long struggle for recognition by the medical profession was at last ended, and she felt that her life work was done.

Although familiar with the teachings of the most radical of the German free-thinkers, and their materialism, she retained her faith in God, and the religion of Christ; through which alone she hoped for the final elevation of mankind.

Her disease was of a chronic nature, causing great and protracted suffering, for the relief of which chloroform and opium were used. It was one of those cases of organic disease of the liver in which the secretion of bile becomes vitiated and gallstones result. The post mortem examination showed several gallstones, one of them over half an inch in diameter and two inches long, filling up and forming a cast of the bifurcation of the biliary ducts.

Thus it will be seen that more than thirty years of her life was spent in unselfish and energetic efforts for the relief of the sufferings of mankind. For nearly twenty years of that time she was an uncomplaining sufferer of perhaps greater pains than many of those whom her skill relieved.

May we not say of her, and join in the hope that the Father of Wisdom has already said to her: "Well done, good and faithful servant."

PROF. WM. T. WYTHE, M. D.

BORN IN PENNSYLVANIA, JUNE 9TH, 1847; DIED IN SAN FRANCISCO, JUNE 27TH, 1880.

Few young men have given greater promise for a useful life than the subject of this brief sketch, and few of the age to which he attained, have been more useful. His academical studies were first pursued at Dickinson College Seminary, Williamsport, Pennsylvania. During this time, and previously, he had unusual opportunities for medical and surgical study in the office of his father, in the anthracite coal region of Pennsylvania, and after the appointment of the latter as surgeon of the U. S. volunteers.

Removing to the Pacific Coast, his studies were renewed at the City College, San Francisco, and at the Willamette University, Oregon, from the latter of which he received the academical degrees with honor.

He then renewed his professional studies in the medical department of the same University, and graduated as M. D., in 1868. After graduation, he received an appointment as Assistant Army Surgeon of the U. S. Army, and was sent with troops and medical stores to Alaska, where he was shipwrecked. The crew and soldiers, barely escaping with life. It was reported of him, that "his conduct on this occasion was marked with great ability and heroism, and contributed much to the safety of the command."

After a year in Alaska, he returned to Oregon and married Miss L. B. Wilson, of Salem. Thence he went to Philadelphia, and graduated a second time in medicine, in the University of Pennsylvania. He practiced three years in Sacramento, during which time he was Secretary of the State Medical Society, and rendered efficient aid in its reorganization. He then came to San Francisco, and was connected with the Medical College of the Pacific until his death. During the latter period he acted as Assistant Secretary of this Society.

An editorial in the Pacific Medical and Surgical Journal pays the following deserved tribute to his memory:

"Dr. Wythe was in the prime of life, having nearly completed his thirty-third year. He had an active, vigorous mind, with a very retentive memory, through which qualifications he had become one of the best anatomists on the Pacific Coast. He had for some years filled the chair of Anatomy in the Medical College of the Pacific, and was eminently successful as a teacher in this department, and also as a clinical instructor. He was a successful practitioner, and as such, was highly esteemed by his patients, who loved him also for his goodness of heart and other excellent personal qualities. The students and faculty, together with a number of the alumni of the college, attended his funeral in a body, walking in procession. The interment was in the beautiful cemetery in the foot-hills east of Oakland."

PROF. ALEXANDER A. O'NEIL, A. M., M. D.

BORN IN NEW YORK CITY, 1847; DIED IN SAN FRANCISCO, OCTOBER, 1880.

The subject of this sketch received a classical education, having entered Saint Ignatius College, San Francisco, at an early age. He remained there until about the year 1864, when he graduated, receiving the degrees of that institution.

He afterwards took a lively interest in the subject of popular education. He served for four years on the Board of Education of San Francisco, being one of its most active and energetic members.

Soon after his graduation in the above named college, he entered the Toland Medical College, as a student of medicine, from which he graduated in the year 1867. He now engaged in the practice of his profession, with the energy for which he was noted; and with such success, that in the year 1871 he was chosen Professor of Anatomy in the Medical College from which he graduated. He served the cause of medical education well and faithfully here, until the year 1878. During this time he was one of the founders of "The Western Lancet," and acted as its editor for a time.

He died suddenly, while engaged in active practice.

His disease had existed for some time, and was that of the heart.

Thus ended one of the most active, though brief, medical careers that falls to the lot of the biographer to chronicle.

DR. I. E. OATMAN, TREAS., IN ACC'T WITH CALIFORNIA STATE MEDICAL SOCIETY. CR.

1880.			1880.		
April 19..	To Balance brought forward..	$54 03	April 27..	By Cash paid Dr. Briggs, as per Voucher No. 1.....	$193 65
April 27..	To Cash per Dr. Briggs—dues	635 00	April 27..	By Cash paid H. S. Crocker & Co., as per Voucher No. 2.	106 50
May 22...	To Cash per Dr. Briggs—dues	5 00	April 27..	By Cash paid Record-Union, as per Voucher No. 3...	6 25
July 30...	To Cash per Dr. Briggs—dues	80 00	May 7....	By Cash paid H. A. Weaver, as per Voucher No. 4....	200 00
August 13.	To Cash per Dr. Briggs—dues	35 00	May 22...	By Cash paid Dr. Briggs, as per Voucher No. 5.....	25 10
1881.			July 28...	By Cash paid H. A. Weaver, as per Voucher No. 6....	100 00
March 12.	To Cash per Dr. Briggs—dues	30 00	August 7..	By Cash paid H. A. Weaver, as per Voucher No. 7....	100 00
April 8...	To Cash per Dr. Briggs—dues	5 00	August 13.	By Cash paid Dr. Briggs, as per Voucher No. 8.....	25 38
			1881.		
			March 12.	By Cash paid Dr. Briggs, as per Voucher No. 9.....	17 25
					$774 13
		$844 03	April 12..	By Balance.....	69 90
April 12..	To Balance.....	$69 90			$844 03

ANNUAL REPORT OF WASHINGTON AYERS, M. D., Treasurer of the Board of Examiners of the Medical Society of the State of California, for the Year ending April 21st, 1881.

1881.	Dr.		Cr.	
May 1.....	Cash on hand	$323 70	By Cash paid R. H. Lloyd, Attorney.....	$200 00
April 18...	Rec'd Cash from Secretary	220 60	By Cash paid for Cabinet	62 75
			By Cash paid Secretary for Services.....	250 00
		$544 30	By Cash paid Bancroft & Co.....	15 00
			Balance Cash on hand.....	16 55
	To Balance Cash on hand	$16 55		
				$544 30

REPORT OF BOARD OF EXAMINERS.

BY R. H. PLUMMER, SECRETARY.

MR. PRESIDENT AND MEMBERS OF THE MEDICAL SOCIETY OF THE STATE OF CALIFORNIA: The Board of Examiners desire to make the following report for the fiscal year ending April 20th, 1881:

The whole number of meetings held during the year		12
Number of duplicate certificates issued, where the original was lost	3	
Number of original certificates issued	70	
Whole number of certificates issued		73
Number of certificates refused on account of insufficient credentials		1
Amount of money in the treasury at the beginning of the year		$323 70
Money received during the year for three duplicate certificates, at one dollar each		3 00
Money received for seventy original certificates, at five dollars each		350 00
Received from the State Medical Society		100 00
Total amount received from all sources		$776 70
Money paid out for witness fees, etc., as per vouchers, in the prosecution of quackery cases		$176 80
Amount paid to the assistant prosecuting attorneys, as per vouchers in hand of Treasurer		200 00
Money paid to the Secretary by order of the Board, for services, etc.		250 00
For one combination secretary, per voucher		62 75
Other expenses of office, as per vouchers		70 60
Total amount paid out		$760 15
Amount remaining in the treasury after the payment of all liabilities		$16 55

The whole number of Certificates issued by this Board since its first organization in 1876, is	1,283
The whole number of Certificates revoked on the ground of unprofessional conduct, is	6
The number of applicants refused certificates on the ground of unprofessional conduct	9
The number refused on the ground of insufficient credentials	27
The number refused upon examination	29
The whole number of applicants refused	65

Of the seventy-three physicians who have received licenses during the past year, three were old practitioners and licentiates of the Board, who, through negligence, had lost their certificates without having had them recorded. Of the remaining seventy, twenty were graduates of the local schools in the State, and fifty were strangers from sister States and other parts of the world.

Of the whole number of licentiates during the year, thirty-one are located in this city, and the remainder in twenty-four different counties other than San Francisco.

The whole number of Alma Maters recognized in issuing these certificates is thirty-seven.

The Board has held no trials for revocation of certificates under Sec. IV of the amended law, during the present year, though such charges have been made.

The grounds, however, upon which they are based, were such that we were advised by our attorney not to take action in the matter. The term "unprofessional conduct," is one of great latitude, and one upon which the regular profession itself is not a unit.

All licensed physicians stand upon an equal footing under the medical law in Courts of justice.

A gentleman is brought before the Board upon a charge of unprofessional conduct, to wit: in practicing "irregular medicine."

The *law* does not define unprofessional conduct, but we are authorized to examine medical experts as to whether the conduct under consideration is unprofessional.

Of course we know as to what our experts will testify, taking the Code of Ethics as their guide. But the defendant is also authorized to examine experts on his own behalf.

The Codes of the other two Societies recognized by this law differ materially from ours upon this point. Hence we have a conflict of expert testimony.

The law evidently designed that any man who is qualified, shall be permitted to practice Homeopathy or Eclecticism if he so desire; but it also requires that he shall possess a license from one of the three Boards created by its authority. If, therefore, we proceed in the matter of the charges, and revoke his certificate, he is debarred under the law from procuring a license from either of the other Boards within a period of one year.

He is clearly entitled under the law to practice medicine; and yet under the same statute he is denied that privilege. It is an untenable position before any Court of competent jurisdiction.

If, therefore, it is not competent for this Board to revoke a certificate for such offense, no more is it legal to revoke one for *consulting with* an "irregular."

We were therefore advised by our attorney, in the interest of the Board, in the interest of medical law, in the interest of the regular profession, and with consideration for the conflicting opinions of mankind, not to take action in such cases.

There have been forty-seven arrests made under the law during the past eighteen months in this city. Of these five were Chinese, three of whom were convicted in the Police Court, and appealed their cases to the Superior Court, where they now rest. The other two were dismissed. Of the remaining forty-two, forty were males and two females. Of these, eighteen were convicted, with penalties in sixteen cases fixed at $50 or twenty-five days in jail, in one case $60 or thirty days, and one case $100 or fifty days.

S. Cohn, the celebrated astrologer, paid his fine of $100; Louise Patterson paid her fine of $50; R. Costello served his thirty days in the county jail; L. J. Jordan, alias John

Hastings, on his first arrest pleaded guilty and paid his fine of $50. It therefore appears that only four fines have been paid thus far.

J. Highwarden, arrested on two charges, one of practicing medicine without a license, and the other of felony, forfeited his bail of $500 and fled the country, going first to Denver, Colorado, but now doing a flourishing business in——

The notorious A. H. R. Funke, alias H. K. F. W. Von Koehring, was arrested four times. First for practicing without a license, when he was convicted; second, for felony, in having forged a diploma and then swearing to its authenticity, but the statute of limitations ran against the latter charge; third and fourth, for practicing without a license. He was convicted on the third trial, and forfeited his bail of $100 on the fourth charge, leaving the country—not so much for the country's good as for his own seeking "green fields and pastures new."

Of the remainder who were convicted, all have appealed their cases to the Superior Court, where they now lie upon beds of roses, void of thorns, while one has been appealed to the Supreme Court of the United States.

All the cases tried before the Police Judge were convicted. Five were tried by juries, one of which was convicted, one acquitted, and in the other three cases the jury disagreed.

Fourteen cases were dismissed—some because they secured a license, others because witnesses left the city, and others because two juries had disagreed, and it was thought a jury would not be secured to convict them. Two cases are still pending.

A few of the cases were promptly tried after arrest, say within two or three weeks. Others profited by the "law's delays," securing continuance after continuance, during several months.

L. J. Jordan, alias John Hastings, proprietor of the Jordan Anatomical Museum, on Market street, was arrested the second time August 27th, 1880. His case was postponed time after time, until about one month ago, when it finally came to trial,

and the Court found him guilty. But when he appeared for sentence he was granted a new trial, which was day before yesterday postponed for the third or fourth time.

H. C. F. Behrens was arrested August 24th, and his case is still pending, now eight months, never having been brought to trial, though set a dozen times, more or less.

A. E. Mintie, a licentiate of this Board in 1876, had his certificate revoked in the same year by a majority of this Board, acting under the name of the Executive Committee. The charge was unprofessional conduct, in advertising specifics, etc. He was arrested in 1879, and his case dismissed on motion of the Prosecuting Attorney. He was again arrested in 1880, tried by jury and acquitted under instructions of the Court that the law does not recognize an Executive Committee.

L. J. Czapkay, long known in the community through the medium of the advertising press, was refused a license by this Board in 1876. He was arrested in 1880, but having secured letters of commendation from several members of the regular profession in this city, and licentiates of this Board, he succeeded in procuring a license (or the promise of one) from the Eclectic Board, when his case was dismissed by consent of the Prosecuting Attorney.

I will here take occasion to call the attention of the Society to the organization of the Eclectic Board, and some of its work during the last eighteen months:

S. Hastings Hall, long known in this city, through the various means of advertising, the employment of ropers, steerers, etc., is one of its licentiates.

W. K. Doherty, also known through the advertising medium, was Secretary of their State Society during 1879 and 1880.

B. F. Josselyn, not less known through the same medium, was Secretary of the Board of Examiners.

J. F. Gibbon, whose portrait with lavish endowment of beard, adorns many newspaper columns and numerous fences throughout the country, is also one of its licentiates.

What can we expect from the working of the law when administered by such men as these?

For reasons that are apparent, it has not been thought prudent hitherto to make public many of the details of the work being done by this Board.

Now, however, that some of the causes of secrecy no longer exist, and as a more extensive publication of the facts gleaned may be productive of good, permit me to give a more detailed account of some of the work done in the Funke case. Funke presented to this Board a diploma accompanied by the usual affidavit in 1876.

The Board unhesitatingly pronounced the diploma a forgery and refused a license upon it. Subsequently he was arrested for practicing without a license, upon which occasion he testified his name was H. R. Funke. He was tried and found guilty, and fined $50.

Afterwards he was arrested upon a charge of forgery and perjury in connection with said diploma. He then testified his name was H. K. F. W. Von Koehring. Pending this trial he induced a prominent merchant of this city to telegraph to Frederick William University, at Berlin, Prussia, for a letter confirming the statement that one Von Koehring had graduated at that institution in 1865. The desired letter was sent to this city by the Rector of the University. About this time, for reasons best known to the legal mind, the charge of felony against him was dismissed. Upon receipt of this letter from the University at Berlin, Funke presented it, together with the usual affidavit, to this Board, demanding a certificate thereon. This Board at once sent a letter of inquiry to Frederick William University, receiving in reply a letter explaining the sending of the above referred to Funke letter, certifying to the graduating of said Von Koehring.

It is proper here to say that the Funke letter, besides certifying to the graduation of H. K. F. W. Von Koehring, stated in addition, that the letter was written by request in a telegram from San Francisco, which stated that the desired letter was to be used for *private purposes*. We also received a copy

of said Von Koehring's thesis, and his vita or life history, as written by himself and appended to his desertation at the time of his graduation. The letter stated, also, that they knew nothing of said Funke.

Pending the arrival of this letter, Funke becoming impatient at the Board's delay, and not having been informed of the steps taken by us, brought a suit of mandamus against the Board to compel it to issue to him a license. Before the case came to trial, however, the desired letter arrived, when Funke was induced to come before the Board to make the necessary explanation. He came with his attorney and witnesses to prove his identity. But he refused to enlighten the Board upon any of the points touching his identity, save by the testimony of this witness. He declined to answer any of those impertinent questions, many of which were formulated from the above mentioned vita and thesis.

He was refused a license. The Board endeavored to have his suit brought to trial but he wished it delayed.

Meanwhile, the Board, not satisfied with the first letter of information received from Berlin, sent a second one through the Chief of Police of this city, and through the German Consul resident here, to the Chief of Police in Berlin. Pending the arrival of this letter, Funke was again arrested, tried, and *again fined* $50. He was arrested again for the fourth time a few days thereafter.

Feeling the coils gradually tightening around him, and the circumference of his liberty and prosperity growing less and less, he put up $100 bail, sold his team, and borrowed what money he could from friends, bought another team and buggy on credit, sold them at auction, and left for parts unknown, leaving many to mourn his departure.

About one week after his exit the desired letter arrived from the Chief of Police at Berlin, containing a photograph of said Von Koehring, also tracing his movements from the date of his graduation up to the time and place of his death in the army. Detectives had been sent out for this purpose, who found and interviewed his surviving sister, and his most inti-

mate friend and former room-mate during four years in the University. Thus ended the contest in this case in favor of the law.

Shortly after, we are informed by the German Consul in this city, that the German Minister resident in Gautemala sends word that one Von Koehring, M. D., had presented himself in that city, claiming to be a diplomatic agent of the German Government. But the ubiquitous sewing machine agent had recognized him as a Dr. Funke, late of this city, where he was in bad repute. He desired information. It is needless to say the information was sent. We next learn, through the same source, that Funke had bid adieu to that beautiful city, with the expressed intention of taking up his residence in New Orleans. His mandamus suit is still pending in the Superior Court of this city.

J. D. MacLennan, the magnetic healer, was tried the first time before the Police Judge and fined $50. He appealed the case. The next time he was arrested he demanded a jury trial. After a labored defense he was acquitted under instruction from the Court that his case came not under the general law, but under section six of the amended law, which rendered him liable to pay a license of $100 per month. This case, together with several others, has been placed in the hands of the License Collector, who upon the advice of special counsel employed by himself, has promised to collect the licenses if they are collectable, which, however, admits of some doubt.

In view of the battle then in progress it was unanimously decided to make no change or recommendation until we should be enabled to see upon whose brow should be placed the victor's crown.

Time went on; some of the advance guard fell 'neath the enemy's fire—some of the outer posts were taken.

Your Board, with its two years' experience in an active campaign, learned more of the defects, of the weak points in the fortifications, than any citizen at home could learn.

Therefore, when the Legislature was about to convene, your Board appointed a committee, with instruction to draft a bill

embodying such amendments to the existing law as would cover some of its defective parts.

The bill was drafted and approved by the Board. It was then submitted to the San Francisco County Medical Society, where it was under consideration during two meetings, and thoroughly discussed and amended in some of its minor details. It was then adopted as a whole, with only four or five dissenting votes.

It was sent to the Chairman of your Committee on Medical Legislation, Dr. Oatman, of Sacramento, with the expectation that it would be submitted to the local Society in that city, and that a copy would also be sent to each individual member of this Society, for approval or rejection—in the former event, to be then presented to the Legislature, and urged with all our energy. But by the time it had reached a consideration in the Sacramento Medical Society, several bills had been introduced in the two houses looking to a repeal of the present law, or at least such a modification of its provisions as would completely cripple it for any good whatever.

The one of these which was urged with the most persistency, and which by the way came nearly passing the Senate in spite of its opponents, was one introduced by Dr. A. T. Hudson, of Stockton.

Most of the profession will doubtless remember the efforts that were put forth in its behalf. It is not worth while to take up your time to mention the others.

In consideration of the forces that were then raised against the existing law, and against any healthful legislation, it was deemed better by those who held the matter in hand not to make any offensive warfare, but to expend their efforts in an endeavor to sustain what we now have, holding this bill in reserve to be submitted to your honorable body now in convention assembled, with the hope that you will appoint a committee, whose business it shall be to consider this bill—make such amendments as they may deem expedient, and report it back to this body at its next annual meeting in 1882—that you may then consider, amend, and adopt it in such a

shape, with the assistance of another year's experience to guide us, as will make it acceptable to all, and with a better prospect of being able to make it a law. And that you shall then appoint a committee, whose business it shall be to present it to the Legislature of 1883, with the indorsement of this Society as a body, and to urge upon them, in the name of scientific medicine, and in consideration of the first great law of nature, to enact it as the law for the government of the practice of medicine in this State.

One thing which the proposed bill has for its commendation is, it is brief, terse, concise.

"Ask why God made the gem so small,
And why so huge the granite?
Because God meant mankind should place
A higher value on it."

AN ACT

TO REGULATE THE PRACTICE OF MEDICINE AND SURGERY IN THE STATE OF CALIFORNIA.

The People of the State of California, represented in Senate and Assembly, do enact as follows:

SECTION 1. The Governor of the State of California shall, within thirty (30) days after the passage and approval of this Act, and every four years thereafter, appoint a State Board of Medical Examiners, consisting of seven (7) persons, who shall hold office for the period of four (4) years, and until their successors shall have been appointed and qualified.

The Examiners so appointed must be regular graduates in medicine from some legally chartered medical school. Vacancies occurring in said Board of Examiners shall be filled in like manner, by the Governor, for the unexpired term.

SEC. 2. Every person practicing medicine or surgery, or any of the departments of medicine or surgery, in this State, shall be a regular graduate in medicine from some legally chartered medical school, and shall appear before the State Board of Medical Examiners above named, and submit to an examination by the Board in anatomy, physiology, pathology, toxicology, chemistry, mechanical surgery and obstetrics; and if the examination be satisfactory to a majority of the whole Board, it shall issue its certificate to the applicant in accordance with the fact. The certificate shall be signed by all the members of the Board of Examiners, and sealed with the seal of the Board.

SEC. 3. The Board of Examiners shall organize in the City of San Francisco within one (1) month after their appointment by the Governor, by electing from their own members a President, Vice President, Secretary, and Treasurer, who shall hold their respective positions during the pleasure of the

Board. The Board shall procure a seal, and shall receive through their Secretary applications for examination. The Secretary shall furnish to the County Clerks of the several counties of the State a list of all persons receiving certificates. The stated meetings of the Board shall be held quarterly, in San Francisco, on the second Monday of January, April, July and October, of each year, for the examination of applicants for certificates, and such other business as may properly come before it.

Due notice of each stated meeting of the Board shall be given by publication three (3) times within one (1) week next preceding the meeting, in two (2) daily papers published in the City of San Francisco.

Special meetings of the Board shall be held for the examination of candidates and other purposes, on the written request of three (3) members.

Said Board may adopt such rules, regulations, or by-laws, as deemed necessary for its government, to secure the most complete and effective success of this Act.

No meeting of the Board shall be valid unless every member thereof shall have been duly notified.

SEC. 4. Each member of the Board of Examiners shall receive a compensation of eight dollars ($8.00) per diem, for each day in actual session examining applicants for certificates, said compensation to be paid by the State Treasurer upon presentation of certificate duly signed by the President and Secretary of the Board, out of any moneys not otherwise appropriated in the General Fund.

The Secretary of said Board shall receive a salary of six hundred dollars ($600) per annum, in addition to the above per diem, to be paid by the State Treasurer in like manner.

SEC. 5. All examinations of applicants for certificates shall be made directly by the Board of Examiners. The examination may be conducted in whole or in part in writing; and the certificate given by the Board shall authorize the person named therein to practice medicine and surgery in this State. The President shall appoint a committee at the com-

mencement of each meeting, when candidates are to be examined, to prepare questions for the written portion of the examination; said questions to be submitted to and approved by a majority of the Board.

SEC. 6. Every person holding a certificate from the Board of Examiners, shall have it recorded in the office of the County Clerk of the county in which the holder of said certificate lives, and the record shall be indorsed on the certificate by the County Clerk recording the same.

Any person removing to another county to practice, shall have said record properly canceled, which cancellation must be noted on said certificate, and the holder of said certificate shall pay to the County Clerk the usual fees for making such record and cancellation; and said certificate shall be re-recorded in the county to which the holder removes.

SEC. 7. The County Clerks in the several counties of the State shall keep in a book provided for the purpose, a complete list of the certificates received and recorded by them, with the date of the register and the date of the cancellation of record. And said record shall be open to public inspection during business hours.

SEC. 8. Each candidate for examination shall pay a fee of thirty dollars ($30) in advance for said examination, and no further charge shall be made by the Board.

All the moneys thus received by the Board, less the current expenses of the same, shall be paid over by the Treasurer to the State Treasurer annually, taking his receipt therefor.

SEC. 9. Any person practicing medicine or surgery in this State, without first having procured a certificate of examination to practice from the Board of Examiners appointed by the Governor under Section 1 of this Act, shall be deemed guilty of a misdemeanor, and upon conviction thereof, shall be punished for the first offense, by a fine of fifty dollars ($50) or imprisonment in the county jail for thirty (30) days; for the second offense, by a fine of two hundred and fifty dollars ($250) or imprisonment for one hundred and fifty (150) days; for the third offense, by a fine of five hundred dollars ($500) or

imprisonment for three hundred and sixty-five (365) days; and for the fourth, and each and every like subsequent offense, by both a fine of five hundred dollars ($500) and imprisonment for the period of three hundred and sixty-five (365) days.

And every person filing for record, or attempting to file for record, the certificate of another, shall be guilty of felony, and upon conviction thereof shall be subject to such fine and imprisonment as are made and provided by the statute of this State for the crime of forgery; *provided*, that no person who holds a valid certificate from one of the Boards of Examiners heretofore existing under the provisions of "An Act to regulate the practice of medicine in the State of California, approved April 3d, 1876," or "An Act supplemental and amendatory to said Act, passed April 1st, 1878," shall be compelled to procure a new certificate. And it shall be and is hereby made the duty of the District Attorneys, Prosecuting Attorneys, etc., in the several counties of the State, to prosecute all persons who violate the provisions of this Act.

SEC. 10. Any person shall be regarded as practicing medicine or surgery within the meaning of this Act, who shall profess publicly to be a physician or doctor; or to cure diseases; or to heal the sick; or who shall habitually prescribe for or treat the sick, injured or deformed, by medicine, drugs, manipulation, or any other expedient; or who shall prefix to his or her name the letters "Dr.," or word "Doctor," or append to his or her name the letters "M. D."

SEC. 11. An Act entitled an Act to regulate the practice of medicine in the State of California, approved April 3d, 1876, and an Act supplemental thereto and amendatory thereof, passed April 1st, 1878, are hereby repealed.

SEC. 12. This Act shall take effect from and after its passage.

CONSTITUTION AND BY-LAWS OF THE SOCIETY.

ARTICLE I.

TITLE OF THE SOCIETY.

SECTION 1. This institution shall be styled "THE MEDICAL SOCIETY OF THE STATE OF CALIFORNIA."

ARTICLE II.

MEMBERS.

SECTION 1. The members of this Society shall consist of delegates from permanently organized local medical societies, ordinary and honorary members, who shall collectively represent and have cognizance of the common interests of the medical profession in the State of California.

SEC. 2. Each delegate from a local Society shall hold his appointment for one year, and until another is appointed to succeed him, and shall participate in all the business and affairs of the Society on paying the usual dues of five dollars.

SEC. 3. Each local Society shall have the privilege of sending to this Society one delegate for every five of its regular resident members, and one for every additional fraction of more than one half that number of its members.

SEC. 4. Qualifications for membership shall consist of a good primary and medical education, attested by a diploma from some known medical school of good repute, and a good professional and moral standing in the community in which such candidate may reside. A license from the Board of Examiners of this Society shall also be required of every candidate.

Ordinary Members—Every physician who shall properly satisfy the Board of Censors by the exhibition of his diploma that he possesses the necessary qualifications as prescribed, may

become an ordinary member of this Society, and all those who may hereafter serve in the capacity of delegates to the Society, together with such other persons as may receive the appointment by unanimous vote, shall thereby become permanent members; *provided*, that no physician shall be considered eligible to membership who may reside within any location where there is a local medical Society, and who has failed to become a member thereof, unless there be some special reason assigned for his election; and no voucher or vouchers of any member or members shall be taken as satisfying evidence of any applicant's qualification for membership.

SEC. 5. Honorary members shall consist of such distinguished *savants* and others as may be deemed worthy of the compliment. They shall receive their appointment by a vote of the Society, and upon motion of some member present.

SEC. 6. Each individual, prior to taking his seat as a member of the Society, must sign the Constitution, inscribing his name and address in full, specifying in what capacity he attends, and if a delegate, the local Society which he represents. Every member shall be entitled to the diploma of the Society, to which shall be attached the seal* of the Society, and the signature of the President and Permanent Secretary.

SEC. 7. The seal of this Society shall always be kept by the Permanent Secretary.

ARTICLE III.

OFFICERS.

SECTION 1. The officers of the Society shall be a President, four Vice Presidents, one Permanent and two Assistant Secretaries, a Treasurer, and a Board of Censors of five members.

* The seal that has been adopted shows enough of the beautiful design of the seal of the State to declare the common origin of the Medical Society and of the State of California, while the cock that was wont to be sacrificed to Esculapius, representing "vigilance," is crowing out 1870, the year of reorganization; and the serpent, emblematic of "sagacity and long life," lies entwined around the doctor's staff at his feet. Thus Vigilance and Sagacity typify the qualities a physician should possess under the direction of Minerva.

These officers shall be nominated by a committee of one member from each county represented, on the morning of the second day of the meeting, and be elected by ballot, except Permanent Secretary. Each officer shall hold his appointment for one year, and until another is elected to succeed him.

SEC. 2. The President shall preside at the meetings, preserve order, give a casting vote in case of a tie, and perform all other duties that custom and parliamentary usage may require. He shall organize and open the meeting next succeeding his election, by an address on some subject connected with medicine, or with the interests of the Society. He may also fill by appointment all vacancies that may occur from death or other causes.

SEC. 3. The Vice Presidents, when called upon, shall assist the President in the performance of his duties, and during his absence, or at the request of the President, one of them shall officiate in his place.

SEC. 4. The Permanent Secretary shall authenticate the proceedings; give due notice of time of next meeting; serve as a member of Committee on Publication; preserve the archives and unpublished transactions of the Society; hold correspondence with other permanently organized Societies, both domestic and foreign, and see that all the published transactions are promptly distributed to the members entitled to receive them. This officer shall not be subject to annual election, and shall not be removed except for cause shown.

SEC. 5. The Assistant Secretaries shall record the minutes, notify members of committees of their appointment, and of the duties assigned them; and in the absence of the Permanent Secretary, one of them shall perform his duties.

SEC. 6. The Treasurer shall have immediate charge and management of the funds as a property of the Society, and hold them subject to the disposal of the Society. At each annual meeting he shall present a report, setting forth the amount of moneys received, as well as the amount disbursed, and for what purpose.

SEC. 7. The Board of Censors shall examine the credentials of all candidates for admission to the Society, and if such credentials are found to conform with the requirements, as enacted in Article II of this Constitution, the Board of Censors shall recommend said applicants to the Society as suitable candidates for election.

ARTICLE IV.

MEETINGS.

SECTION 1. The regular meetings of the Society shall be held annually, and commence on the third Wednesday of April.

ARTICLE V.

STANDING COMMITTEES.

SECTION 1. The following standing committees, each composed of five members, of whom the first named is Chairman, shall be nominated at every annual meeting by the President elect, for the purpose of preparing and arranging business for each ensuing year, and for carrying into effect the orders of the Society not otherwise assigned, namely:

On Practical Medicine and Medical Literature.

On Surgery.

On Obstetrics.

On Medical Topography, Meteorology, Endemics, and Epidemics.

On Indigenous Botany and the Domestic Adulteration of Drugs.

On Public Hygiene and State Medicine.

On Histology and Microscopy.

On Mental Diseases and Medical Jurisprudence.

On Medical Education.

On Prize Essays.

On Medical Legislation.

On Gynecology.

On Diseases of Women and Children.

On Ophthalmology.

On Necrology.
On Publication.
On Arrangements.

SEC. 2. The Committee on Practical Medicine and Medical Literature shall prepare an annual report on the more important improvements effected in this State in the management of individual diseases; the improvements and discoveries which may have been made in Anatomy, Physiology, General Pathology, Therapeutics, and Medical Jurisprudence.

SEC. 3. The Committee on Surgery shall prepare an annual report on all the important improvements in the management of surgical diseases effected in the State during the year, and as far as can be ascertained, the number of capital operations performed, with their results.

SEC. 4. The Committee on Obstetrics shall prepare an annual report on the important improvements in the obstetrical art, and in the management of diseases peculiar to women and children, effected in the State during the year, together with such remarks touching these subjects as they may think proper.

SEC. 5. The Committee on Medical Topography, Meteorology, Endemics, and Epidemics, shall prepare an annual report on the peculiarity of the soil and climate of the different sections of the State, with the diseases to which they are subject; also the endemics and epidemics which have prevailed throughout the State during the year.

SEC. 6. The Committee on Indigenous Botany and the Domestic Adulteration of Drugs shall prepare an annual report on the indigenous medical botany of the State of California, paying particular attention to such plants as are found to possess valuable medicinal qualities, and are not accurately described in standard works, and the localities where they are found. Also, to report on the quality of drugs brought to our market, with the view to correct the evils arising from the extensive introduction and sale of spurious and sophisticated articles.

SEC. 7. The Committee on Public Hygiene and State Medicine shall prepare an annual report on all subjects germane to this important branch of medical science.

SEC. 8. The Committee on Histology and Microscopy shall report and demonstrate such valuable facts and discoveries, annually, bearing directly or indirectly on medicine and surgery, as they may think proper.

SEC. 9. Committee on Mental Diseases and Medical Jurisprudence. This committee shall report on all psycological questions, and on such matters appertaining to medical jurisprudence as in their judgment may be deemed advisable.

The duties of these committees shall be defined by a committee of three appointed by the President for that purpose.

SEC. 10. The Committee on Medical Education shall prepare annual reports on the general condition of medical education in the State of California, as compared with the state of medical education in other States of the Union, noticing the several medical institutions of the State, their course of instruction, the practical requirements for graduating, the modes of examination for conferring degrees, and the reputed number of pupils and graduates at each during the year; together with such other matters as they may deem worthy of consideration in reference to medical education and the reputable standing of the profession.

SEC. 10½. The President shall annually appoint a Committee on Medical Legislation, whose duty it shall be, by all lawful and honarable means, to promote the passage of Acts of Legislation approved and recommended by this Society, with discretionary powers in emergencies.

SEC. 11. The Committee on Publication—of which the Permanent Secretary must constitute a part—shall have charge of preparing for the press, and of publishing and distributing, such of the proceedings, transactions, and memoirs of the Society, as may be deemed worthy to be published.

SEC. 12. The Committee of Arrangements shall be composed of members residing at the place at which the Society is to hold its annual meeting, and shall be required to provide

suitable accommodations for the meeting, to report on the credentials for membership, and to receive and announce all vol untary communications made to the Society.

SEC. 13. In order to afford the Committee on Medical Topography, Meteorology, Endemics and Epidemics, and on Indigenous Botany and the Domestic Adulteration of Drugs, material for their several annual reports, it shall be the duty of the several auxiliary Societies in the State to transmit to the Chairman of these respective committees, on or before the first day of March of each year, a special report embracing such information touching their particular localities as may enable said committees to make full reports on all subjects committed to them.

SEC. 14. The standing committees shall constitute sections, after the manner of the American Medical Association, to whom all papers shall be referred upon the first day of the session, and who shall report to the Society those papers that seem of sufficient interest for reference to the Committee on Publication; also, those that seem of sufficient importance to be read before the Society, by title, abstract, or *in extenso*, upon the second day of the meeting.

ARTICLE VI.

VOLUNTARY CONTRIBUTIONS.

SECTION 1. After the reading and discussion of the annual reports, or at any other period during the meeting of the Society, by the vote of two thirds of the members present, it shall be the privilege of any member to present to the consideration of the Society, either orally or in writing, communications on medical subjects, reports of interesting cases, or such other matters as may be deemed of interest to the profession, which communication may on motion be referred to the Committee on Publication, and if deemed by them worthy of preservation, shall appear among the proceedings.

ARTICLE VII.

FUNDS AND APPROPRIATIONS.

SECTION 1. The funds of this Society shall be raised by individual voluntary contributions, by the sale of its publications, and by an annual tax of five dollars on each member of the Society, on the payment of which he shall be entitled to a copy of all the publications for the year.

SEC. 2. The funds thus raised may be appropriated for defraying the expenses of the annual meetings; for publishing the proceedings, memoirs, and transactions of the Society; for enabling the standing committees to fulfill their respective duties, conduct their correspondence, and procure the material for the completion of their stated annual reports; for the encouragement of scientific investigations by prizes and awards of merit, and for such other purposes as the Society may from time to time direct.

SEC. 3. Any member who shall fail to pay his annual dues for two successive years, unless absent from the State, or for other reasonable causes, shall be dropped from the roll of members, after having been notified by the Permanent Secretary of the forfeiture of such membership; and no member so dropped shall be reinstated in his membership until he shall have paid all arrears due by him.

ARTICLE VIII.

DELEGATES TO THE NATIONAL MEDICAL ASSOCIATION.

SECTION 1. The Society shall annually appoint, to represent it in the American Medical Association, one delegate for every ten members, and one for every additional fraction of more than one-half this number, whose certificates of appointment shall be signed and duly authenticated by the President and Secretary.

ARTICLE IX.

CODE OF ETHICS.

SECTION 1. The Code of Medical Ethics recommended by the National Medical Association, held in Philadelphia, in May,

1847, having been approved and adopted by this Society, shall have the full force and effect of any Article of this Constitution.

ARTICLE X.

DISCIPLINE OF MEMBERS.

SECTION 1. Any violation of the provisions of the Constitution or of the Code of Ethics adopted by this Society, shall be referred to the Board of Censors for adjudication, from whose decision an appeal may be taken to the Society. Such violation being reported by the Board of Censors to the Society, and established to the satisfaction of a majority of the members, the individual or individuals thus offending shall be excommunicated, and deprived of all the privileges of membership.

SEC. 2. The Society shall have jurisdiction in all cases of appeals taken from auxiliary Societies, in which event their decision shall be final.

ARTICLE XI.

AMENDMENTS AND ALTERATIONS.

SECTION 1. No amendment or alteration shall be made in any of the Articles of this Constitution, except at the annual meeting next subsequent to that at which such alteration or amendment may have been proposed, and then only by the concurrence of two thirds of the members in attendance.

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AMENDMENTS TO CONSTITUTION.

ARTICLE II, SECTION 4. Provided, that no physician be elected a member of this Society from a county having a local Society, unless he be a member of the same, or unless there be some special reason for his election.—[1872, October 10th.]

ARTICLE IV, SECTION 1. Amended by striking out in the second line the words "second Wednesday in October," and inserting "second Wednesday in April," as the time for holding the annual meeting of the Society.

ARTICLE III, SECTION 4. Making it obligatory upon the Permanent Secretary to reside in Sacramento, striking out that clause requiring the meetings of the Society to be held in Sacramento, leaving the choice of such place with each session of the Association.—[1873, April 10th.]

ARTICLE IV, SECTION 1. Changing the time of meeting to the third Wednesday in April.—[1873, April 10th.]

ARTICLE VII, SECTION 3. Any member who shall fail to pay his annual dues for two consecutive years, unless absent from the State, or for other reasonable causes, shall be dropped from the roll of members, after having been notified by the Permanent Secretary of the forfeiture of his membership; and no member so dropped shall be reinstated in his membership until he shall have paid arrears due by him.—[1874, April 21st.]

ARTICLE V, SECTION 14. That the standing committees shall constitute sections, after the manner of the American Medical Association, to whom all papers shall be referred upon the first day of the session, and who shall report to the Society those papers that seem of sufficient interest for reference to the Committee on Publication; also those that seem of sufficient importance to be read before the Society, by title,

abstract, or *in extenso*, upon the second day of meeting.—[1874, April 21st.]

ARTICLE II, SECTION 4. After the word "Censors," add "by the exhibition of his diploma;" and after the word "election," add "and no voucher or vouchers of any member or members shall be taken as satisfactory evidence of any applicant's qualification for membership."—[1875, April 19th.]

ARTICLE II, SECTION 4. "Shall be entitled to permanent membership" to read "shall thereby become permanent members."—[1875, April 19th.]

ARTICLE III, SECTION 1. After the word "ballot" add "except Permanent Secretary."—[1877, April 18th.]

ARTICLE III, SECTION 4. After "them" add "this officer shall not be subject to annual election, and shall not be removed except for cause shown.' —[1877, April 18th.]

ARTICLE II, SECTION 6. After "the" be added "signature of the President and Permanent Secretary."—[1878, April 18th.]

ARTICLE II, SECTION 4. A license from the Board of Examiners of this Society shall also be required of every candidate.—[1878, April 18th.]

ARTICLE III, SECTION 4. Strike out the words "shall reside in Sacramento."—[1881, April 21.]

ARTICLE V, SECTION 1. Add the words, "on Gynecology; on Diseases of Women and Children; on Ophthalmology; on Necrology."—1881, April 21st.]

ARTICLE V, SECTION 9. Add the words, "the duties of these committees shall be defined by a committee of three, appointed by the President for that purpose."—[1881, April 21st.]

ARTICLE V, SECTION 10½. The President shall annually appoint a Committee on Medical Legislation, whose duty it shall be, by all lawful and honorable means, to promote the passage of Acts of Legislation approved and recommended by this Society, with discretionary powers in emergencies.—[1881, April 21st.]

RESOLUTIONS RELATING TO THE GOVERNMENT OF THE SOCIETY.

Resolved, That a Committee of three be appointed by the Chair, to secure the passage of an amendment to the laws organizing the State Board of Health to enforce the registration of deaths, births, etc., to enable the Board of Health to secure more complete statistics in relation thereto.—[1870, October 20th.]

Resolved, That a committee be appointed by the Chair, to present to this Society, at its next meeting, any amendment which may be advisable, in their judgment, to the present law regulating the registration of births and deaths.—[1870, October 20th.]

Resolved, That the fact of a doctor of medicine being engaged in the manufacture and sale of any secret or patent medicine, or in any way promoting the use of them, shall render him ineligible as a member of this Society.—[1871, October 12th.]

Resolved, As a sense of this Society, that the subject of medical ethics should receive a larger share of attention in medical universities and colleges of the country, to the end that the true principles inculcated therein may be more thoroughly impressed upon the minds of the students, and, in consequence, more faithfully and scrupulously observed by them in their subsequent professional career.—[1871, October 12th.]

Resolved, That the Board of Censors shall recommend no candidate for membership until he shall have presented his diploma or other evidence of being a graduate of a recognized school, and of good standing; and that no voucher of a single

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Resolved, That this Society recognizes the diplomas of the land College, and places its graduates who are now members of this Society, or who may hereafter apply for membership, on the same footing as the graduates of other regular schools.—[1875, April 21st.]

Resolved, That the original founders of the Society are permanent members, and liable to yearly dues, and that all members once admitted are liable to yearly dues, whether simply as a delegate or otherwise.—[1875, April 21st.]

Resolved, That a committee of five members be appointed for the purpose of promoting the organization of county or district Societies.—[1875, April 21st.]

Resolved, That the San Francisco Medical Benevolent Society be and the same is hereby recognized as a local medical society within the meaning of the Constitution of the State Medical Society, which requires its member to belong to a local medical Society, when there is one where they reside.—[1875, April 19th.]

On motion it was ordered that the actual expenses incurred by the Board of Examiners be paid by the Treasurer of the Society.—[1875, April 19th.]

Resolved, That this Society indorse the views of the President as to the importance of the creation of local Boards of Health in every incorporated city and town in the State; and recommend the invocation of legislative aid in the promotion of so desirable an object.—[1877, April 18th.]

Resolved, That the practice of making annual contracts with individuals or Societies for medical attendance is not only derogatory to the dignity of the profession, but is an actual violation of the code of medical ethics adopted by the American Medical Association, as well as the code adopted by this Society.—[1877, April 18th.]

Resolved further, That the name of any member of this association who shall hereafter make or renew a contract for

annual medical attendance upon individuals or societies, shall be stricken from the roll of the same.—[1877, April 18th.]

It was ordered that the actual expenses incurred by the Board of Examiners of this Society be paid by the Treasurer of the Society; who shall also pay such expenses of litigation as may be deemed necessary and expedient in order to carry out the objects of the law under which they were elected.—[1877, April 18th.]

Resolved, That the Publication Committee be requested to insert in the proceedings, in a collective form, all the changes in the Constitution, and the resolutions relating to the government of the Society, which have been adopted from time to time.—[1878, April 17th.]

Resolved, That the several local medical societies and Boards of Health throughout the State be requested to urge their respective city, county, and town authorities to establish ordinances or laws requiring all practitioners of medicine within the limits of their respective jurisdictions to report in writing to their respective Boards of Health, all cases of the more dangerous epidemic diseases coming under their professional observation.—[1878, April 17th.]

Resolved, That the Secretary of the Board of Examiners be instructed to communicate with the local medical societies, and urge that they prosecute violations of the medical law, and that they report progress from time to time to the Board of Examiners.—[1878, April 17th.]

Resolved, That this Society appeal to all ministers of the gospel throughout the State, and urge them to use their influence in all proper and available ways, to discourage the inhuman, degrading, and extensively prevailing practice of feticide.—[1878, April 17th.]

Resolved, Whereas, in consequence of the silence of the profession, the regular practice of medicine is very generally characterized as *allopathy* by the secular press, by medical dogmatists and sectarians, and by the public at large, and the

epithet, *allopath*, applied to its individual members through ignorance, to a great extent, that the name was introduced by Hahnemann to give distinction to his homeopathic dogmas; therefore,

Resolved, That we, the Medical Society of the State of California, in unison with the regular profession throughout the world, do hereby utterly repudiate the name of *allopath*, as applied to ourselves, or *allopathy*, as applied to our practice; the regular profession of medicine knowing no sectarianism in medicine, practicing no exclusive dogma, or in any way restricting its legitimate members in the treatment of their patients, but, on the contrary, giving them the fullest latitude to use any remedy or any means whereby the welfare of the sick may be promoted, their health insured, or their lives prolonged.—[1879, April 16th.]

Resolved, That the Medical Society of the State of California respectfully request the American Medical Association, at its next annual meeting, to memorialize the Congress of the United States to pass a law requiring the proprietors of all patent or proprietary medicines, offered for sale in the United States of America, on and after July 1st, 1880, to accompany each bottle, box, and package of such medicines with a printed label or circular, plainly stating all the medicinal and other substances contained therein, and their relative proportions; or to adopt some form of legislation that will accomplish the purpose herein contemplated.—[1879, April 17th.]

STANDING COMMITTEES

OF THE

Medical Society of the State of California for 1881-1882.

Practical Medicine—W. S. Thorne, San Jose, Chairman; A. B. Stout, San Francisco; C. H. Allen, Centreville; A. S. Dubois, San Leandro; J. H. Carothers, Martinez.

Surgery—W. E. Taylor, San Francisco, Chairman; G. W. Dalton, Tomales; R. Hunt, Nevada City; Thos. Kelly, San Jose; C. K. Farley, Gilroy.

Obstetrics—W. H. Mays, San Francisco, Chairman; L. W. Patty, Petaluma; H. Rucker, Merced; A. M. G. Stuart, Santa Barbara; H. Worthington, Los Angeles.

Medical Topography and Endemics—F. W. Hatch, Sr., Sacramento, Chairman; M. M. Chipman, San Francisco; N. S. Hamlin, Yuba City; E. A. Watson, Sonora; St. George L. Hopkins, Oakland.

Indigenous Botany—W. P. Gibbons, Alameda, Chairman; David Huber, Gilroy; W. T. Lucas, Woodland; H. Neal, Hollister; Alice Higgins, Anaheim.

Hygiene and State Medicine—Henry Gibbons, Sr., San Francisco, Chairman; J. F. Montgomery, Sacramento; W. A. Russell, Visalia; Jacob L. Sargent, Woodbridge; G. P. Reynolds, Alameda.

Histology and Microscopy—J. H. Wythe, Oakland, Chairman; M. B. Pond, Napa; L. E. Smith, La Porte; Oscar Stansbury, Chico; A. Kesseler, Volcano.

Mental Diseases—E. T. Wilkins, Napa, Chairman; G. A. Shurtleff, Stockton; J. L. Meares, San Francisco; T. M. Todd, Auburn; Chas. F. Miller, Hills Ferry.

Medical Education—A. W. Saxe, Santa Clara, Chairman; P. Wheeler, Oakland; R. S. Markell, Cloverdale; Augustus Hirtel, San Jose; Alemby Jump, Downieville.

Prize Essays—A. B. Stout, San Francisco, Chairman; J. B. Trembley, Oakland; Chas. McQueston, San Francisco; O. Harvey, Galt; L. C. Lane, San Francisco.

Medical Legislation—I. E. Oatman, Sacramento, Chairman; H. S. Orme, Los Angeles; T. B. DeWitt, San Francisco; R. H. Plummer, San Francisco; A. B. Nixon, Sacramento.

Gynecology—C. Cushing, San Francisco, Chairman; G. Chismore, San Francisco; J. C. Shafter, Olema; B. F. Hardy, San Francisco; C. B. Brown, San Francisco.

Diseases of Women and Children—Kate N. Post, San Francisco, Chairman; Sarah Shuey, Berkeley; E. S. Mead, San Jose; C. A. Buckel, Oakland; Eliza Grissell, San Francisco.

Ophthalmology—W. E. Briggs, Sacramento, Chairman; A. M. Wilder, San Francisco; A. Barkan, San Francisco; N. J. Martinache, San Francisco; A. P. Whittell, San Francisco.

Necrology—C. G. Kenyon, San Francisco, Chairman; E. H. Pardee, Oakland; S. H. Rupe, Healdsburg; John Leffler, Pacheco; W. C. Jones, Grass Valley.

Publication—G. L. Simmons, Sacramento, Chairman; W. R. Cluness, Sacramento; H. W. Nelson, Sacramento; T. A. Snider, Sacramento; W. A. Briggs, Sacramento.

Committee on Arrangements—G. H. Powers, San Francisco, Chairman; B. R. Swan, San Francisco; Washington Ayer, San Francisco; J. O. Hirschfelder, San Francisco; W. H. A. Hodgdon, San Francisco.

CATALOGUE OF OFFICERS AND MEMBERS

OF THE

MEDICAL SOCIETY OF THE STATE OF CALIFORNIA.

PRESIDENTS AND VICE PRESIDENTS OF THE STATE MEDICAL SOCIETY.

1856.

SACRAMENTO.

President,

B. F. Keene.....El Dorado.

Vice Presidents,

E. S. Cooper.....San Francisco
S. Langdon.....San Joaquin.
D. W. C. Rice.....Yuba.
R. K. Reid.....San Joaquin.
F. W. Hatch.....Sacramento.

1857.

SACRAMENTO.

President,

H. Gibbons.....San Francisco.

Vice Presidents,

R. H. McDaniels.....Yuba.
O. Harvey.....El Dorado.
A. J. Spencer.....Santa Clara.
R. B. Ellis.....Sacramento.
A. B. Stout.....San Francisco.

1858.

SAN FRANCISCO.

President,

A. B. Stout.....San Francisco.

Vice Presidents,

Whitney.....San Francisco.
ge.....Yuba.
Spencer.....San Jose.
. Oatman.....Sacramento.
rison.....San Francisco.

1859.

SACRAMENTO.

President,

B. Ellis.....San Francisco.

Vice Presidents,

. F. McLane.....Yuba.
W. Harkness.....Sacramento.
. Harvey.....El Dorado.
W. G. Deal.....Alameda.
I. F. Montgomery.....Sacramento.

1860.

President,

Isaac Rowell.....San Francisco.

Vice Presidents,

Isaac S. Titus.....El Dorado.
C. A. Kirkpatrick.....Solano.
R. B. Cole.....San Francisco.
Ira E. Oatman.....Sacramento.

Corresponding Secretary,

*E. S. Cooper.....San Francisco.

Recording Secretaries,

G. Taylor.....Sacramento.
G. L. Simmons.....Sacramento.

Treasurer,

H. W. Harkness.....Sacramento.

*Dr. Cooper was elected one of the Vice Presidents, but declined—preferring the position of Corresponding Secretary.

1861.

President,

Samuel F. Hamm.....El Dorado.

Vice Presidents,

B. H. Pierson.....Sacramento.
G. L. Simmons.....Sacramento.
C. A. Kirkpatrick.....Solano.
B. A. Sheldon.....San Francisco.
J. G. Tucker.....San Francisco.

Corresponding Secretary,

E. S. Cooper.....San Francisco.

Recording Secretaries,

G. Taylor.....Sacramento.
Isaac S. Titus.....El Dorado.

Treasurer,

H. W. Harkness.....Sacramento.

1870.

SAN FRANCISCO.

(Reorganization of State Medical Society.)

President,

T. M. Logan.....Sacramento.

Vice Presidents,

S. R. Harris.....San Francisco.
T. H. Pinkerton.....Alameda.
J. L. Ord.....Santa Barbara.
G. A. Shurtleff.....San Joaquin.
D. B. Hoffman.....San Diego.

1871.

SACRAMENTO.

President,

H. Gibbons, Sr.....San Francisco.

Vice Presidents,

G. A. Shurtleff.....San Joaquin.

F. W. Hatch.....Sacramento.
F. W. Todd.....San Joaquin.
J. F. Montgomery.....Sacramento.

1872.

OAKLAND.

President,

G. A. Shurtleff.....San Joaquin.

Vice Presidents,

T. H. Pinkerton.....Alameda.
J. J. Franklin.....Sonora.
W. F. Cheney.....Butte.
W. F. Hays.....SanLuisObispo

1873.

SACRAMENTO.

President,

T. H. Pinkerton.....Alameda.

Vice Presidents,

J. M. Brown.....Solano.
C. A. Kirkpatrick.....San Mateo.
F. W. Hatch.....Sacramento.
H. M. Briggs.....Santa Barbara.

Permanent Secretary,

G. G. Tyrrell.....Sacramento.

1874-75.

SAN FRANCISCO.

President,

J. M. Brown, U. S. N.....Solano.

Vice Presidents,

A. B. Nixon.....Sacramento.
W. F. Cheney.....Butte.
Martin Baker.....Tulare.
R. K. Reid.....San Joaquin.

Permanent Secretary,

G. G. Tyrrell.....Sacramento.

1861.

President.

Samuel F. Hamm.....El Dorado.

Vice Presidents.

R. H. Pierson.....Sacramento.
G. L. Simmons.....Sacramento.
C. A. Kirkpatrick.....Solano.
R. A. S[illegible].....San Francisco.
J. G. T[illegible].....San Francisco.

Corresponding Secretary.

E. S. C[illegible].....San Francisco.

Recording Secretary.

G. Taylor.....Sacramento.
Isaac S. Titus.....El Dorado.

Treasurer.

H. W. Hawkins.....Sacramento.

1862.

San Francisco.

Corresponding Secretary.

Treasurer.

T. W. [illegible].....Sacramento.

Vice Presidents.

S. R. Harris.....San Francisco.
T. [illegible].....Alameda.
J. L. [illegible].....Santa Barbara.
G. A. Sherriff.....San Joaquin.
D. E. [illegible].....San Diego.

Corresponding Secretary.

Recording Secretary.

E. Gibbons, Sr.....San Francisco.

Vice President.

G. A. Sherriff.....San Joaquin.

F. W. Hatch.....Sacramento.
F. W. Todd.....San Joaquin.
J. F. Montgomery.....Sacramento.

1872.

OAKLAND.

President,

G. A. Shurtleff.....San Joaquin.

Vice Presidents,

T. H. Pinkerton.....Alameda.
J. J. Franklin.....Sonora.
W. F. Cheney.....Butte.
W. F. Hays.....SanLuisObispo

1873.

SACRAMENTO.

President,

T. H. Pinkerton.....Alameda.

Vice Presidents,

J. M. Brown.....Solano.
C. A. Kirkpatrick.....San Mateo.
F. W. Hatch.....Sacramento.
H. M. Briggs.....Santa Barbara.

Permanent Secretary,

G. G. Tyrrell.....Sacramento.

1874-75.

SAN FRANCISCO.

President,

J. M. Brown, U. S. N.....Solano.

Vice Presidents,

A. B. Nixon.....Sacramento.
W. F. Cheney.....Butte.
Martin Baker.....Tulare.
R. K. Reid.....San Joaquin.

Permanent Secretary,

G. G. Tyrrell.....Sacramento.

1875-76.

SAN FRANCISCO.

President,

A. B. Nixon ..... Sacramento.

Vice Presidents,

W. F. Cheney ..... Butte.
H. H. Toland ..... San Francisco.
W. R. Cluness ..... Sacramento.
H. S. Orme ..... Los Angeles.

Permanent Secretary,

G. G. Tyrrell ..... Sacramento.

1876-77.

SAN FRANCISCO.

President,

Wm. Fitch Cheney ..... Chico.

Vice Presidents,

B. D. Dean ..... San Francisco.
N. S. Hamlin ..... Yuba City.
M. B. Pond ..... Napa.
F. W. Todd ..... Stockton.

Permanent Secretary,

G. G. Tyrrell ..... Sacramento.

1877-78.

SAN JOSE.

President,

Washington Ayer ..... San Francisco.

Vice Presidents,

L. C. Lane ..... San Francisco.
A. W. Saxe ..... Santa Clara.
J. M. Briceland ..... Shasta.
Thomas Ross ..... Woodland.

Permanent Secretary,

G. G. Tyrrell ..... Sacramento.

1878-79.

SAN FRANCISCO.

President,

H. S. Orme.....Los Angeles.

Vice Presidents,

A. W. Saxe.....Santa Clara.
J. M. Briceland.....Shasta.
James Simpson.....San Francisco.
G. L. Simmons.....Sacramento.

Permanent Secretary,

G. G. Tyrrell.....Sacramento.

1879-80.

SAN FRANCISCO.

President,

A. W. Saxe.....Santa Clara.

Vice Presidents,

F. W. Todd.....Stockton.
J. M. Briceland.....Shasta.
C. G. Kenyon.....San Francisco.
W. A. Washington.....Merced.

Treasurer,

Ira E. Oatman.....Sacramento.

Permanent Secretary,

G. G. Tyrrell.....Sacramento.

1880-81.

President,

F. W. Todd.....Stockton.

Vice Presidents,

G. G. Tyrrell.....Sacramento.
G. W. Davis.....Chico.
A. H. Agard.....Oakland.
C. A. Kirkpatrick.....San Mateo.

Treasurer,

Ira E. Oatman.....Sacramento.

Permanent Secretary,

Wallace A. Briggs.....Sacramento.

1881-82.

President,

Gerrard G. Tyrrell.....Sacramento.

Vice Presidents,

L. C. Lane.....San Francisco.
W. S. Thorne.....San Jose.
B. F. Clark.....Chico.
E. T. Wilkins.....Napa.

Treasurer,

Ira E. Oatman.....Sacramento.

Permanent Secretary,

Wallace A. Briggs.....Sacramento.

Assistant Secretaries,

Thos. Ross.....Woodland.
C. G. Kenyon.....San Francisco.

Board of Censors,

O. O. Burgess.....San Francisco.
J. O. Hirschfelder.....San Francisco.
G. H. Powers.....Marin.
H. J. Crumpton.....Lakeport.
C. P. Chesley.....San Francisco.

Board of Examiners,

C. M. Bates.....San Francisco.
R. H. Plummer.....San Francisco.
Clinton Cushing.....San Francisco.
W. F. McNutt.....San Francisco.
James Simpson.....San Francisco.
Henry Gibbons, Jr.....San Francisco.
A. H. Agard.....Oakland.

Alternates,

G. A. Shurtleff.....Stockton.
H. N. Rucker.....Merced.
Thos. Kelly.....San Jose.

ORDINARY MEMBERS.

[Those who have an obelisk (†) prefixed to their names are dead.]

Adams J. S.....Oakland.
Adler, Albert S.....San Francisco.
Agard, A. H.....Oakland.
Aiken, Chas R.....Stockton.
Allen, C. H.....Centerville.
Anthony, A. G.....Oakland.
Ayer, W.....San Francisco.
†Babcock, H. P.....Oakland.
†Baker, Martin.....Visalia.
Baldwin, H. S.....San Francisco.
Bamford, Wm.....East Oakland.
Barber, E. T.....Oakland.
Barkan, A.....San Francisco.
Bates, C. B.....Santa Barbara.
Bates, C. M.....San Francisco.
Belinge, F. A. A.....San Francisco.
Blake, C. E.....San Francisco.
Blake, C. M.....San Francisco.
Blake, Jas. W.....San Francisco.
Boushey, Julius.....Oakland.
Briceland, J. M.....Shasta.
Briggs, Wm. Ellery.....Sacramento.
Briggs, Wallace A.....Sacramento.
†Brinkerhoff, S. B.....Santa Barbara.
Brown, C. Blake.....San Francisco.
Brown, J. M., U. S. N.....Mare Island.
†Brown, James A.....Sutter Creek.
Brown, Wm. M.....Oakland.
Brownell, E. A. V.....Oakland.
Bruner, W. H.....San Francisco.

Buckel, C. Annette.....Oakland.
Bucknall, G. J.....San Francisco.
Bucknell, M. E.....San Francisco.
Burdick, J. F.....Oakland.
Burgess, O. O.....San Francisco.
Cachot, M. A.....San Francisco.
Caldwell, A. B.....Marysville.
†Caldwell, A. B.....Santa Clara.
Caldwell, H. H.....San Jose.
Caldwell, Robert.....San Jose.
†Campbell, S. D.....Suisun.
Carothers, J. H.....Martinez.
Carr, E. S.....Oakland.
†Chamberlain, P.....San Francisco.
†Chase, Geo. C.....Downieville.
Chase, Albert.....San Francisco.
†Cheney, William Fitch.....Chico.
Chesley, C. P.....San Francisco.
Chipman, M. M.....San Jose.
Chismore, George.....San Francisco.
Clark, Asa.....Stockton.
Clark, J. H.....Azusa.
Clark, B. F.....Chico.
Cluness, W. R.....Sacramento.
Cochrane, A. H.....San Jose.
Cole, R. Beverly.....San Francisco.
Coleman, F. W.....Napa.
Cory, Benjamin.....San Jose.
Cox, J. B.....San Jose.
†Crook, John T.....San Francisco.
Crumpton, H. J.....Lakeport.
Curless, Wm.....Truckee.
Curran, M. K.....San Francisco.
†Curtis, E. M.....Sacramento.
Cushing, Clinton.....San Francisco.
Davis, G. W.....Chico.
Dean, Benjamin D.....San Francisco.

Delmont, F.....Ventura.
Dennis, S. W.....San Francisco.
DeWitt, Thos. B.....San Francisco.
Dozier, Franklin L.....Napa.
Dubois, A. S.....San Leandro.
Durant, F. C.....Folsom.
Dutton, G. W.....Tomales.
Ellinwood, C. N.....San Francisco.
Farley, C. K.....Gilroy.
Fenn, C. M.....San Diego.
Ferrer, H.....San Francisco.
Fitzgibbon, G. J.....San Francisco.
Fiske, Henry M.....San Francisco.
Fiske, H. W.....Quincy.
Flint, Joseph.....Tehama.
Follingsbee, E. A.....San Francisco.
Foley, W. L.....Oroville.
Foote, Erastus N.....Lockeford.
Foulkes, J. F.....Oakland.
†Franklin J. J.....Sonora.
Gardner, Mathew.....Davisville.
†Gates, H. S.....San Francisco.
Gibbons, Henry.....San Francisco.
Gibbons, Henry, Jr.....San Francisco.
Gibbons, Wm. P.....Alameda.
Grady, J. F.....Weaverville.
Green, T.....San Francisco.
Grisselle, Eliza.....San Francisco.
Grover, W. A.....San Francisco.
Hamlin, N. S.....Yuba City.
Hanson, Thos. C.....Winnemucca.
Hardy, B. F.....San Francisco.
†Harris, S. R.....San Francisco.
Hart, H. H.....San Francisco.
Harvey, O.....Galt.
†Harville, S. W.....San Francisco.
Hatch, F. W.....Sacramento.

Hatch, F. W., Jr.....Napa.
Hirschfelder, J. O.....San Francisco.
Higgins, Alice.....Anaheim.
Hertel, C. A. E.....Lodi.
Hodgdon, W. H. A.....San Francisco.
Holmes, Stillman.....Santa Cruz.
Hopkins, St. George L.....Oakland.
Huber, David.....Gilroy.
Hunt, R.....Nevada City.
Jackson, G. H.....Woodland.
Jenkins, T. J.....Oroville.
Jewell, J. G.....San Francisco.
Jones, William C.....Grass Valley.
Jump, Alemby.....Downieville.
Keane, G. B.....San Francisco.
Kelly, Thos.....San Jose.
Kenyon, C. G.....San Francisco.
Kesseler, A.....Volcano.
Kier, H. M.....Knight's Ld'ng
Kirkpatrick, C. A.....Redwood City.
Laine, J. R.....Sacramento.
Lane, L. C.....San Francisco.
Lawlor, Wm. M.....Oakland.
†Lasvignes, L.....Forest City.
LeTourneux, T. J.....San Francisco.
Lewitt, Wm.....San Francisco.
†Logan, Thomas M.....Sacramento.
Leffler, John.....Pacheco.
Lucas, W. T.....Guadalupe.
Lusson, P. M.....San Jose.
Markell, R. S.....Cloverdale.
Martinache, N. J.....San Francisco.
Martineaut, E. D.....San Francisco.
Matson, E. A.....Sonora.
Mays, W. H.....San Francisco.
McCornack, W. A.....Mendocino.
McLaughlin, M.....San Francisco.

McLean, R. A.....San Francisco.
McMahan, John B.....Oakland.
McNutt, W. F.....San Francisco.
McQuesten, Chas.....San Francisco.
Mead, E. S.....San Jose.
Meares, J. L.....San Francisco.
†Mehring, A. B.....Visalia.
Miller, Chas. F.....Hill's Ferry.
Miller, P. B. McD.....Oroville.
†Millington, Jno.....San Francisco.
Montgomery, J. F.....Sacramento.
†Morse, Jno. F.....San Francisco.
Murphy, James.....San Francisco.
Murphy, R. W.....San Francisco.
Mussey, J. M.....La Porte.
Neal, H.....Hollister.
Nelson, H. W.....Sacramento.
Newmark, V.....Benicia.
Niles, W. B.....Roseville.
Nixon, A. B.....Sacramento.
Oatman, Ira E.....Sacramento.
†O'Neil, A. A.....San Francisco.
O'Toole, M. C.....San Francisco.
Orme, H. S.....Los Angeles.
Patty, L. H.....Petaluma.
Pardee, E. H.....Oakland.
Parramore, E. L.....Woodland.
Paugh, W. J.....San Francisco.
Pawlicki, L.....San Francisco.
Payne, F. H.....Berkeley.
Pelham, J. E.....San Francisco.
Pietrzycki, M.....Rio Vista.
Pike, H. G.....Hopland.
Pinkerton, T. H.....Oakland.
Plummer, R. H.....San Francisco.
Powell, D.....Marysville.
Powers, G. H.....San Francisco.

Pond, M. B.....Napa.
Post, Kate N.....San Francisco.
Pratt, A. H.....Dixon.
Reinhart, M.....Berkeley.
Reynolds, G. E.....San Francisco.
Reynolds, G. P.....Alameda.
Robertson, E. B.....San Francisco.
Robertson, H. D.....Oakland.
Rodgers, L. O.....San Francisco.
Ross, Thos.....Woodland.
Rowell, Chas.....San Francisco.
Rucker, Hiram N.....Merced.
Rugg, S. P.....San Francisco.
Ruggles, Chas. A.....Stockton.
Rupe, S. H.....Healdsburg.
Russell, W. A.....Visalia.
†Sage, C. T.....San Francisco.
Sargent, Jacob L.....Woodbridge.
Saxe, A. W.....Santa Clara.
Scott, Jno.....San Francisco.
Seymour, F. A.....Oakland.
Shafter, J. C.....Olema.
†Sharp, Wm.....Jackson.
Shuey, Sarah I.....Berkeley.
Shurtleff, Benjamin.....Napa.
Shurtleff, G. A.....Stockton.
Simmons, G. L.....Sacramento.
Simonton, W. B.....Oakland.
Simpson, Jas.....San Francisco.
Smith, L. E.....Laporte.
Smith, Q. C.....Cloverdale.
Snider, T. A.....Sacramento.
†Sproule, Samuel F.....Chico.
Stansbury, Oscar.....Chico.
Steele, Chas. H.....San Francisco.
Stockton, E. A.....Stockton.
†Stone, E. P.....Oakland.

Stout, A. B.....San Francisco.
Stuart, Anabel McG.....Santa Barbara.
Sullivan, James F.....San Francisco.
Swan, Benj. R.....San Francisco.
†Thorndyke, A.....Stockton.
Thorne, W. S.....San Jose.
†Tilden, T. W.....Chico.
Todd, T. M.....Auburn.
Todd, F. W.....Stockton.
†Toland, H. H.....San Francisco.
Trembley, J. B.....Oakland.
Twitchell, W. L.....San Francisco.
Tyrrell, G. G.....Sacramento.
Van Vlack, G. J.....San Francisco.
†Van Wyck, John C.....Oakland.
Wagner, John.....San Francisco.
Walker, D.....Bodie.
Wanzer, L. M. F.....San Francisco.
Washington, W. A.....Merced.
Watts, Nelson.....Chico.
†Wayman, W. G.....San Francisco.
Weldon, W. E.....San Francisco.
Wells, J. T.....Bakersfield.
Wells, W. H.....Dixon.
Wheeler, P.....Oakland.
White, G. A.....Sacramento.
Whittell, A. P.....Mendocino.
Wilder, A. M.....San Francisco.
Wilkins, E. T.....Napa.
Williams, N.....Richland.
Woolsey, E. H.....Oakland.
Worthington, H.....Los Angeles.
†Wythe, W. T.....San Francisco.

HONORARY MEMBERS.

Joseph Hyrtel.....Vienna, Austria.
Charles A. Cameron.....Dublin, Ireland.
†Professor Louis Agassiz.....Massachusetts.
S. W. Thayer.....Vermont.
J. H. Wythe.....Oakland, Cal.
John LeConte.....Oakland, Cal.
Joseph LeConte.....Oakland, Cal.
A. Ames.....Boston, Mass.
S. M. Tibbitts.....San Francisco.
P. Landsdale.....United States Navy.
David Kindleberger.....United States Navy.
W. E. Taylor.....United States Navy.
S. F. Shaw.....United States Navy.
W. M. Nickerson.....United States Navy.
G. Farwell.....United States Navy.
C. McCormick.....United States Army.
R. Murray.....United States Army.
C. C. Keeney.....United States Army.
E. Bently.....United States Army.
F. Tallon.....United States Army.

ERRATA.

Page 280, fourth line from bottom, read ulnar instead of ulna.
Page 281, fifth line second paragraph, read thin instead of their.
Page 289, twelfth line from top, read alumina instead of aluminu.
Page 289, fourth line from bottom, read received instead of achieved.
Page 290, last line, second paragraph, read desired instead of described.
Page 294, second line from top, read cases instead of causes.
Page 295, second line from bottom, leave out "against."
Page 295, bottom line, insert after of, "its."

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